



UNIVERSITY OF CALGARY  
FACULTY OF SCIENCE  
DEPARTMENT OF GEOSCIENCE  
COURSE OUTLINE

1. **Course:** GLGY 445, Structural Geology -- Winter 2018

*Lecture 01:* (MWF, 10:00-10:50 in ICT122)

<b>Instructor Name</b>	<b>Email</b>	<b>Phone</b>	<b>Office</b>	<b>Hours</b>
Hersh Gilbert	hersh.gilbert@ucalgary.ca	403.220.6446	ES 150	Monday 11-1

Mechanical principles involved in the deformation of rocks; classification of tectonic structures in stratified and non-stratified rocks; manipulation of structural data and its predictive use. Includes basic kinematics, dynamics, rheology, and descriptive structural geology. Also includes a strong lab component emphasizing 3D problem solving, structural analysis, and the use of geologic data sets to construct geologic cross-sections.

*Course Site:*

D2L: GLGY 445 L01-(Winter 2018)-Structural Geology

Department of Geoscience: ES 118, 403 220-5841, geoscience@ucalgary.ca

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

2. **Prerequisites:**

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

Geology 343.

Credit for Geology 445 and 341 will not be allowed.

Geology 343; Mathematics 253 or 283 or 267 or 277 or Applied Mathematics 219; Mathematics 211.

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:

<b>Component(s)</b>	<b>Weighting %</b>
Midterm Exams	30
Final Exam	30
Lab activities	10
Lab Assignments	30
Top Hat	extra credit

Each of the above components will be given a letter grade using the official university grading system. The final grade will be calculated using the grade point equivalents weighted by the percentages given above and then converted to a final letter grade using the official university grade point equivalents.

The above weightings will be used to give a final course mark. Based on the design of the class the weights may shift based on what will best align with the format. Conversion of the course mark to a letter grade will be done using the scale above. The Instructors may shift the numerical cut-off levels down, but they will not be shifted up.

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

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

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#### 5. **Scheduled out-of-class activities:**

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

**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.

There will be no mandatory activities held outside of class hours. Optional tutorial sessions may be held prior to the final exam, but these will be discussed in class prior to the examination period.

#### 6. **Course Materials:**

The required text for this course is Structural Geology, 2nd Edition by H. Fossen. Although not required, It is recommended that the student obtain a copy of Basic Methods of Structural Geology by Marshak and Mitra to bring to the lab periods. This text will provide a useful reference for the lab exercises.

#### 7. **Examination Policy:**

Exams are closed book and may include multiple choice and both short and long answer format question.

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 those reports. 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 (laboratories, assignments, and exams). Students are expected to submit high quality work. In all cases, quality work must be well organized, clearly written and presented, and have all information sources properly noted or cited. 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 and significant figures). You are expected to show all your work, including equations and sample calculations where necessary (especially when relying on spreadsheets or computer programs to generate results). See also Section E.2 of the University Calendar.

#### 10. **Human studies statement:**

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

#### 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.

1. **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

2. **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. **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.**

- b. **Assembly Points:** In case of emergency during class time, be sure to FAMILIARIZE YOURSELF with the information on [assembly points](#).
- c. **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-accomodations-for-students-with-disabilities\\_0.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](mailto:rmeyer@ucalgary.ca) or phone 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: <http://www.ucalgary.ca/pubs/calendar/current/e-4.html>

- d. **Safewalk:** Campus Security will escort individuals day or night ([www.ucalgary.ca/security/safewalk/](http://www.ucalgary.ca/security/safewalk/)). Call [403-220-5333](tel:403-220-5333) for assistance. Use any campus phone, emergency phone or the yellow phones located at most parking lot pay booths.
- e. **Freedom of Information and Privacy:** This course is conducted in accordance with the Freedom of Information and Protection of Privacy Act (FOIPPA). 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 also [www.ucalgary.ca/legalservices/foip](http://www.ucalgary.ca/legalservices/foip).
- f. **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: [suvpaca@ucalgary.ca](mailto:suvpaca@ucalgary.ca).
- g. **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.
- 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. **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](http://www.ucalgary.ca/wellnesscentre) or call [403-210-9355](tel:403-210-9355).

**Department Approval:**

Electronically Approved

**Date:** 2018-01-02 15:32

## Course Outcomes

1. Describe the difference between stress and strain
2. Calculate stress in a rock volume and distinguish between lithostatic, hydrostatic, and differential stress fields.
3. Use Mohr diagrams to make predictions about the strain (faults and fractures) that will result from a given stress field.
4. Explain the role that rheology plays in controlling deformation style and deformation rate, and explain the role of fluids in controlling rock strength and make failure predictions for stressed dry and wet systems.
5. Draw the anatomy of the different classes of faults, folds and fractures, and describe the link between regional tectonic stress fields and brittle deformation styles; specifically, modes of faulting and folding, and analyze and interpret geologic maps and draw basic balanced geologic cross-sections.