COURSE OUTLINE

1. **Course:** GLGY 445, Structural Geology - Winter 2024

   Lecture 01 : MW 11:00 - 12:15 in ST 064

   **Instructor**  
   Dr Eva Enkelmann  
   eva.enkelmann@ucalgary.ca  
   **Phone**  
   403 220-5852  
   **Office**  
   ES 518  
   **Hours**

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:** Monday and Wednesday at 11–12:15 AM at TI 140

**Labs:** Tuesdays

*Pop-up quizzes are done at the beginning of the lectures, make sure you arrive on time to not miss out.*

**Course Site:**

D2L: GLGY 445 L01 -(Winter 2024)- Structural Geology

**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 343.

   **Antirequisite(s):**
   Credit for Geology 445 and 341 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:
<table>
<thead>
<tr>
<th>Course Component</th>
<th>Weight</th>
<th>Due Date (duration for exams)</th>
<th>Modality for exams</th>
<th>Location for exams</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lab Homework Assignments</td>
<td>15%</td>
<td>Ongoing</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lab Participation</td>
<td>5%</td>
<td>Ongoing</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Discussion Board Participation</td>
<td>5%</td>
<td>Ongoing</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Quizzes and Group activities during lecture hours</td>
<td>5%</td>
<td>Ongoing</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Final Class project</td>
<td>20%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Midterm 1</td>
<td>15%</td>
<td>Jan 31 2024 at 11:00 am (45 Minutes)</td>
<td>in-person</td>
<td>TI 140/148 lecture class</td>
</tr>
<tr>
<td>Midterm 2</td>
<td>15%</td>
<td>Mar 13 2024 at 12:00 am (45 Minutes)</td>
<td>in-person</td>
<td>TI 140/148 lecture class</td>
</tr>
<tr>
<td>Lab Final Exam</td>
<td>20%</td>
<td>Apr 02 2024</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

1. Due to the design of the course, a student can only miss 2 in-person lab components.
2. Rubrics will be provided through D2L for the evaluation of the discussion board participation.
3. The three lowest grades will be dropped.
4. This includes a presentation and written paper on the class project as well as a round of peer review. More information and rubrics for evaluation will be provided later in the semester through D2L.
5. Lab final will be written during the normal lab section hours.

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.

<table>
<thead>
<tr>
<th>Minimum % Required</th>
<th>A+</th>
<th>A</th>
<th>A-</th>
<th>B+</th>
<th>B</th>
<th>B-</th>
<th>C+</th>
<th>C</th>
<th>C-</th>
<th>D+</th>
<th>D</th>
</tr>
</thead>
</table>

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:

In the event that a student legitimately fails to submit any online or in-person assessment on time (e.g. due to illness, domestic affliction, 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, or possible exemption and reweighing of components. Absences not reported within 48 hours will not be accommodated. Students may be asked to provide supporting documentation (Section M.1) for an excused absence, See FAQ.

If an excused absence is approved, options for how the missed assessment is dealt with is at the discretion of the coordinator or course instructor. Some options such as an exemption and pro-rating among the components of the course may not be a viable option based on the design of this course.

Labs run weekly on Tuesdays. Lab homework assignments are due at the beginning of the student's lab section the week following its assignment. A completion grade will be assigned (e.g. 0, 0.5, 1) and the lab will be immediately handed back.

The answer key will be posted Tuesday after the last lab section. Students are responsible for correcting their own lab assignment and corrections will be due the following week in their lab section. Corrections will be given a mark for completeness (e.g. 0, 0.5, 1). The grade for the lab will be the product of the completion and the correction grades (e.g. 0.5 x 1 = 0.5). Don't forget to submit the lab a second time even if you got a 1 for the completeness.

If you miss the lab final (2 April 2024) you will have to schedule a make-up final with the TA of your lab section.

There will be many pop–up quizzes and group exercises in the lectures, that will together count 5% of the final grade. There are no make-up quizzes for any reason that may come up that causes a student to not take the quiz. However, the 3 quizzes/group exercises with the lowest grades will be dropped for calculating the overall grade. With other words, you can miss up to three quizzes/group assignments.

If you miss the midterm exams, you will need to schedule a make-up exam with Dr. Enkelmann via email.

5. Scheduled Out-of-Class Activities:

There are no scheduled out of class activities for this course.
6. Course Materials:

Required Textbook(s):


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 E-Learning online website.

7. Examination Policy:

No aids are allowed on midterm examinations. A list of allowed items (ruler, calculator) for the Lab final will be posted on D2L.

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 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.
Course Outcomes:

- Draw the maps and draw basic balanced geologic cross-sections.
- Stress fields and brittle deformation styles; specifically, modes of faulting and folding, and analyze and interpret geologic events.
- Explain the role that rheology plays in controlling deformation style and deformation rate, and explain the role of fluids in these processes.
- Use Mohr diagrams to make predictions about the strain (faults and fractures) that will result from a given stress field.
- Calculate stress in a rock volume and distinguish between lithostatic, hydrostatic, and differential stress fields.
- Describe the difference between stress and strain.
- Interpret 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.
- 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.