

## ERTH 3806: STRUCTURAL GEOLOGY – WINTER 2021

Welcome to Structural Geology, the course that explores the different structures and structural patterns that form throughout the Earth's lithosphere as well as the causes and processes of their formation. My email is [Sharon.Carr@carleton.ca](mailto:Sharon.Carr@carleton.ca). I will be available during weekly office hours (the video conference link is posted on cuLearn), and by appointment, after classes or labs and via email. Below you will find information about the course and how you can contact the Teaching Assistants. *We all want to see you succeed in this course and will do whatever we can to keep you engaged and help you learn!*

### **COURSE DESCRIPTION:**

ERTH 3806 Structural Geology [0.5 credit]: Structures and deformational processes in a variety of crustal settings. Applications to geological engineering and mineral and petroleum exploration. Prerequisites: ERTH 2105 and ERTH 2406. Lecture two hours a week and laboratory three hours a week.

### **COURSE DELIVERY:**

**Lecture: 2:35 - 4:25 PM (Tuesday)** lectures as well as in-class exercises (individual, or pairs or teams - in breakout rooms) will be held via Zoom during the scheduled class period. Lectures will be recorded and posted on cuLearn. Material will be posted on cuLearn for anyone unable to attend lectures.

**Laboratory A01: 11:35 - 2:25 (Wednesday)**. Laboratories will be conducted via Zoom or Big Blue Button during the scheduled laboratory period. Lab introductions will be recorded and posted.

**Teaching Assistants** (weekly office hours will be posted on cuLearn and appointments at other times are available upon request; emails will be answered):

Grayson Bilak ([GraysonBilak@cmail.carleton.ca](mailto:GraysonBilak@cmail.carleton.ca))

Sarah Mount ([SarahMount@cmail.carleton.ca](mailto:SarahMount@cmail.carleton.ca))

### **MARK DISTRIBUTION:**

- |   |            |
|---|------------|
| ▪ <b>Course participation</b> including reading assignments                             | <b>30%</b> |
| ▪ <b>In-class polls, quizzes &amp; assignments</b>                                      | not graded |
| ▪ <b>Quizzes</b>  | <b>20%</b> |
| ▪ <b>Laboratory assignments</b>   | <b>30%</b> |
| ▪ <b>Final exam</b> (a passing mark of $\geq 50\%$ must be achieved to pass the course) | <b>20%</b> |

**Late Assignment and Lab Policy.** Late assignments and labs will be accepted without penalty in the instance of illness, emergencies, technical issues, etc. **but you are required to contact S. Carr within 24 hours** (e.g., via email) to make arrangements. Otherwise, for late labs, 10% per day will be deducted for each day late. Assignments and labs will not be accepted more than 6 days after the normal due date.

**Conflicts with Course Requirements:**

Students with conflicts for any examination or quiz must have a note from an employer or a medical certificate to write the exam or quiz at another date. Unless caused by illness, **all conflicts must be reported to the instructor prior to the exam or quiz date.** If an exam or quiz is missed due to illness contact regarding a deferral must be made within 24 hours of the exam or quiz deadline. In the case of a serious illness, see the rules concerning deferral of an exam or assignment at <https://carleton.ca/registrar/specialrequests/deferral/>.

**COURSE REQUIREMENTS – MY STUDENT RESPONSIBILITIES ARE:**

- **Act with academic integrity**, which is a commitment, even in the face of adversity, to the values of honesty, trust, fairness, respect and responsibility.
- **Be equipped:** i.e., computer with camera & microphone; textbook and lab manual; geometry and drafting supplies, etc.
- **Email [sharon.carr@carleton.ca](mailto:sharon.carr@carleton.ca) or send a message right away or within 24 hrs** to advise of absences due to illness, emergencies and technical or other difficulties.
- **Be aware of the backup plan(s)** in the case of technical difficulties.
  - ✓ **If I have technical difficulties during class or lab time**, I will contact the Professor or Teaching Assistants immediately, in the moment, via chat, text or email for trouble shooting or information about using an alternate platform.
  - ✓ **If that the Professor or Teaching Assistants have technical difficulties during class or lab time**, I will check my email and cuLearn for instructions. If the class is not resumed, then a recorded session will be posted.
- **Regularly check the cuLearn webpage and my Carleton emails for:**
  - ✓ a synopsis of the weekly rollout including
    - weekly objectives and deadlines;
    - 'video conference' links (e.g. zoom);
    - a list of resources and tools to have at hand for each lecture and lab (e.g., classification schemes, geometry set including compass, protractor and calculator, graph and tracing paper, stereonet, lab manual, maps, etc.)
    - office hours
    - student activities

- ✓ lecture topics and pre-lecture assignments (e.g., reading assignments, video links, homework, etc.);
- ✓ pre-laboratory and laboratory assignments;
- **Participate in the weekly lectures:** either the synchronous lectures and in-class activities or the posted lecture material.
- **Participate in the weekly laboratories:** either the synchronous laboratories or the posted lab material.
- **Complete all course participation activities** including reading the textbook and handing in the reading assignments.
- **Prepare each week for lectures and laboratories** including assembling required tools & materials.
- **Log in on time** for synchronous lectures and laboratories.
- **Hand in laboratory and reading assignments on time.**

#### **ERTH 3806 COURSE LEARNING OUTCOMES:**

By the end of this course, I will be able to:

1. Identify and describe the physical and geometric characteristics of structures and systems of structures.
2. Carry out structural analysis and interpretation (i.e. surface and subsurface mapping; cross-section construction; orthographic projection; stereographic projection; strain analysis; kinematic analysis; determination of fault relationships with respect to principal stresses; and, structural analysis of joints, faults, lineations & foliations, folds, and shear zones).
3. Relate forces and stresses to mechanical strength and behaviour of rocks.
4. Explain deformation mechanisms of structures and microstructures.
5. Interpret the origin and structural (or tectonic) significance of structural systems.
6. Apply structural analysis to Geoscience problems involving Earth systems, resources or hazards.
7. Distinguish observations from interpretation, apply critical thinking skills and communicate questions, ideas, data, interpretations, and conclusions pertinent to the field of structural geology.

**TEXT BOOK AND LABORATORY MANUAL** (on reserve in the library):

**Hatcher, Robert D, Jr. & Bailey, Christopher, M.** 2019. Structural Geology, 3<sup>rd</sup> edition, Oxford University Press. This is a required textbook with reading assignments worth a substantial part of your grade (i.e., Course Participation). Purchase book or e-book online.

**Rowland, S.M., Duebendorfer, E.M. and Schiefelbein, I.** 2007. Structural Analysis and Synthesis, A Laboratory Course in Structural Geology. Third Edition. This manual, that was also used in EARTH 2406, contains required readings and lab exercises for many of the labs. Available digitally from the library; may be purchased online.

**REQUIRED TOOLS:**

Computer equipped with camera and microphone. Geometry set (i.e., with scales in metric and English, protractor, drawing compass); drafting and mapping tools (e.g., fine point pencils with hard 2H pencil leads, pencil sharpener, eraser, colored pencils); stereonet, graph paper, tracing paper, mineral and rock identification and classification resources, etc.

**2021 WINTER TERM DATES**

Jan 6	University reopens
Jan 11	Winter term classes begin
Jan 25	Last day for registration in winter term classes; last day to change courses
Jan 31	Last day for withdrawal with full fee adjustment
Feb 15	Statutory holiday – University closed
Feb 16 -19	Winter break – no classes or labs
Mar 19	Last day to submit accommodation requests to PMC
Apr 2	Statutory holiday – University closed
Apr 14	Winter term ends; classes follow a Friday schedule; last day to hand in term work
April 16-27	Final exam period

## POLICIES, ACADEMIC INTEGRITY AND PLAGERISM

### **Recording policies of video conference activities:**

This class or portions of this class and laboratory introductions will be recorded by the instructor or TAs for educational purposes. These recordings will be shared only with students enrolled in the course via the course cuLearn Page.

Unauthorized student recording is prohibited. Students requesting the use of assistive technology as an accommodation should direct such requests to the [Paul Menton Centre](#).

Unauthorized student recording of classroom or other academic activities (including advising sessions or office hours) is prohibited. Unauthorized recording is unethical and may also be a violation of University policy. Students requesting the use of assistive technology as an accommodation should contact the [Paul Menton Centre](#). Unauthorized use of classroom recordings – including distributing or posting them – is also prohibited. Under the University's [Copyright Policy](#), faculty own the copyright to instructional materials – including those resources created specifically for the purposes of instruction, such as lectures slides, lecture notes, and presentations. Students cannot copy, reproduce, display, or distribute these materials or otherwise circulate these materials without the instructor's written permission. Students who engage in unauthorized recording, unauthorized use of a recording, or unauthorized distribution of instructional materials will be referred to the appropriate University office for follow-up.

### **Academic misconduct**

The University has adopted a policy to deal with allegations of academic misconduct. Please review and familiarize yourselves with Carleton's Student Academic Integrity Policy:

<https://carleton.ca/secretariat/wp-content/uploads/Academic-Integrity-Policy.pdf>

as well as that of the Faculty of Science: <https://science.carleton.ca/academic-integrity/>

These policies are binding on all students.

### ***Sanctions are severe and are strictly enforced.***

- **First offence, first-year students** (< 4.0 credits completed): No credit for assessment(s) in question, or a final grade reduction of one full letter grade (e.g., A- becomes B-), whichever is a greater reduction
- **First offence (anyone else): A grade of F in the course**
- **Second offence (anyone): A grade of F in the course and a one-term suspension from studies**
- **Third offence: Expulsion from the University**

The Academic Integrity Policy:

- describes those actions and behaviors which violate Carleton University's standards of academic integrity;
- defines the responsibilities of various offices and individuals in upholding the policy;

- specifies the procedures and processes to be followed when an allegation of violating these standards has been made against a student;
- specifies the sanctions that may be applied to a student who has been found to have violated these standards; and,
- describes the appeal and petition processes open to students who feel they have not been treated fairly under this policy.

***The instructor is required to report all incidents (or suspected incidents) directly to the Dean of Science.*** All work handed in must be your own work. Plagiarism (i.e., presenting another's ideas, arguments, words or images as your own), violation of exam rules, misrepresentation of facts for any academic purpose, using unauthorized material, impersonation, fabricating or misrepresenting research data, disruption of academic activities, obstruction or interference of scholarly activities of another student, unauthorized co-operation or collaboration, or completing work for another student are viewed as being particularly serious, and the sanctions imposed are accordingly severe. Students who infringe the Policy may be subject to one of several penalties including: suspension from a program; withdrawal from courses; a grade of zero, a failure or a reduced grade for a piece of academic work; completion of a remediation process, etc.

In particular:

- ✓ My answers to questions, exercises and assignments will be my own work.
- ✓ I will NOT share questions, answers or assignments with anyone else or post them anywhere on the internet, discussion boards, etc.
- ✓ I will NOT share course content (videos, lecture slides, or any other material) with anyone else or post them anywhere on the internet.
- ✓ I am aware of [sanctions](#) that may be used if I engage in any activity that will dishonestly improve my results in this course.

## **COPYRIGHT OF COURSE MATERIALS**

Classroom teaching and learning activities, including lectures, discussions, presentations, etc., by both instructors and students, are copy protected and remain the intellectual property of their respective author(s). All course materials, including PowerPoint presentations, outlines, and other materials are protected by copyright and remain the intellectual property of their respective author(s).

Students registered in the course may take notes and make copies of course materials for their own educational use only. Students are not permitted to reproduce or distribute lecture notes and course materials publicly for commercial or non-commercial purposes without express written consent from the copyright holder.

## ACADEMIC ACCOMMODATIONS

<https://students.carleton.ca/course-outline>

**Requests for Academic Accommodation:** You may need special arrangements to meet your academic obligations during the term. For an accommodation request, the processes are as follows:

### **Pregnancy obligation**

Please contact your instructor with any requests for academic accommodation during the first two weeks of class, or as soon as possible after the need for accommodation is known to exist. For more details, visit the Equity Services website: [carleton.ca/equity/wp-content/uploads/Student-Guide-to-Academic-Accommodation.pdf](https://carleton.ca/equity/wp-content/uploads/Student-Guide-to-Academic-Accommodation.pdf)

### **Religious obligation**

As soon as you receive your course syllabus, identify any potential conflicts between your religious obligations and course requirements. Please contact your instructor with any requests for academic accommodation during the first two weeks of class, or as soon as possible after the need for accommodation is known to exist. For more details, visit the Equity Services website: [carleton.ca/equity/wp-content/uploads/Student-Guide-to-Academic-Accommodation.pdf](https://carleton.ca/equity/wp-content/uploads/Student-Guide-to-Academic-Accommodation.pdf)

### **Academic Accommodations for Students with Disabilities**

If you have a documented disability requiring academic accommodations in this course, please contact the Paul Menton Centre for Students with Disabilities (PMC) at 613-520-6608 or [pmc@carleton.ca](mailto:pmc@carleton.ca) for a formal evaluation or contact your PMC coordinator to send your instructor your **Letter of Accommodation** at the beginning of the term. **Contact me (Sharon Carr) at least two weeks before the any exams during the term to ensure that accommodation arrangements are made, and for final exams notify me and submit requests to PMC by March 19<sup>th</sup>.**

### **Survivors of Sexual Violence**

As a community, Carleton University is committed to maintaining a positive learning, working and living environment where sexual violence will not be tolerated, and survivors are supported through academic accommodations as per Carleton's Sexual Violence Policy. For more information about the services available at the university and to obtain information about sexual violence and/or support, visit: [carleton.ca/sexual-violence-support](https://carleton.ca/sexual-violence-support)

### **Accommodation for Student Activities**

Carleton University recognizes the substantial benefits, both to the individual student and for the university, that result from a student participating in activities beyond the classroom experience. Reasonable accommodation must be provided to students who compete or perform at the national or international level. Please contact your instructor with any requests for academic accommodation during the first two weeks of class, or as soon as possible after the need for accommodation is known to exist. <https://carleton.ca/senate/wp-content/uploads/Accommodation-for-Student-Activities-1.pdf>