

ERTH 2406: Geology and Map Interpretation

Winter 2024 Course Outline

Welcome to Geology and Map Interpretation. The course focused on documenting and interpreting fundamental information about rocks and map patterns and interpreting geologic history.

This document and the Brightspace course website contain information about the course, instructor contact information and academic policies. It also contains links to a range of student-focused organizations & student support (e.g., Earth Sciences groups and activities, Health Care Resources, Ojigkwanong Indigenous Student Centre, Paul Menton Centre, Science Student Success Centre, etc.). I encourage you to take advantage of these resources. The teaching assistants and I 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 2406 [0.5 credit] Geology and Map Interpretation: Analysis and interpretation of geological features and processes using rocks, maps and cross sections. Introduction to computational methods. Prerequisites: ERTH 2102 and ERTH 2004. Lecture two hours a week and laboratory three hours a week.

Course Delivery:

The lectures and labs for this course will be delivered in person exclusively. See lecture and lab schedule below. ***Lecture slides will be available on Brightspace; however, lecture participation will not be available via videoconference, nor will lectures be recorded or posted.***

Course Evaluation:

The course includes two major components, lecture and lab. Instruction consists of two lecture hours per week, in-person. Labs are only offered on-campus, in person. A passing grade must be achieved in the lab to complete the course and completion of all components of the course is required to pass the course. A total of $\geq 50\%$ for the course is required to pass the course.

Reading Assignments	15%
Lecture Participation	5%
Quiz	15%
Lab Assignments	45%
Lab & Field Manual Project	20%

Class Schedule:

Lecture Time: R 2:35 pm – 4:35 pm
Lecture Location: HP 3120
Student Hours: R 1 -2 pm or by appointment

Lab Time: M 11:35 am – 2:25 pm
Lab Location: HP 2130

Instructor

Geoff Pignotta
Office: Herzberg 2102
Phone: 613-520-2600 x3024
Email: geoff.pignotta@carleton.ca

Teaching Assistants:

Weekly office hours, with room/zoom links, will be posted on Brightspace; appointments at other times are available upon request; emails will be answered:

- Mark Flesch (MarkFlesch@cmail.carleton.ca)

Required Course Materials:

Textbook: Rowland, S.M., Duebendorfer, E.M. and Gates, A., Structural Analysis and Synthesis, A Laboratory Course in Structural Geology, Fourth Edition. Published by Wiley Blackwell, 2021 ISBN: 978-1-119-53548-5.

Paper and digital versions are available in the Carleton University Bookstore. This book is required; readings and problems form the basis for some labs. This book contains required readings and lab exercises for both 2406 and 3806 Structural Geology next year. We will cover the first five chapters in EARTH 2406. The **Fourth Edition is absolutely required** as prior editions are radically different.

Required Class and Laboratory Tools: Geometry set (i.e., with scales in metric and English, protractor); calculator; 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, hand Lens, computer (note that if you do not have a laptop to bring to class/lab please let me know and we can accommodate this).

Reading Assignments:

There will be 2 reading assignments during the term, each worth 7.5% of your overall mark totaling 15%. Each reading assignment will consist of a set of readings from various sources. There will be a **timed** quiz available to complete in Brightspace with a set of questions that pertain to the reading assignment. Questions will be a mix of types including T/F, MC, matching and short answer. Additional information regarding the reading assignments will be presented in lecture and posted on Brightspace.

Lecture Participation:

Poll Everywhere will be used in lectures to evaluate your understanding of content and concepts throughout the term. You **MUST** use your @cmail account to be counted as participating or for graded activities. For people with existing accounts who are not sure what email they used, follow the instructions on Brightspace to check and change your Poll Everywhere account email. This is so that your responses can be linked to Brightspace and included in your grade. There will also be other in class activities some of which will be included in the lecture participation grade.

Quizzes:

There will be one this term and the quiz will be taken **IN PERSON ONLY**. Quiz questions will examine topics covered in lecture, lab and readings. The quiz will take place towards the middle of the term. Study guides, additional details and dates will be posted on Brightspace and provided in lecture.

Lab Assignments:

Laboratories will be conducted "in person" in the laboratories within the Department of Earth Sciences (see schedule above). Aspects of the labs will be discussed during the first week of class. It is important to be aware that lecture content and lab content are complimentary in nature. These are not 2 distinct components, participation in lecture is critical for success in lab and vice versa. Lab introductions will not be posted.

Lab & Field Manual Project:

This project is a resource for you, not just for this course but for many of your courses in the coming years. You will certainly find this useful in EARTH 2802 (Field Geology I) as well as many other lab or field experiences in your career. You will compile and organize your own laboratory and field manual, in a field notebook, using laboratory handouts and resource materials. Include items like the Geological Time Scale, mineral abbreviations, modal percent estimation charts, grain size and shape classifications, rock and structural naming classifications, and geological symbols, etc. Additional details regarding this project will be presented in lecture and posted to Brightspace.

Learning Outcomes:

By the end of the course, each successful student will acquire the following skills and knowledge sets in the lecture and laboratory sessions:

- Create (by hand or computer) geological and subsurface maps, cross sections and 3D illustrations from geological information.
- Identify and describe minerals, textures, and primary or secondary structures in rocks. Classify, name and interpret sedimentary, igneous and metamorphic rocks.
- Read geologic maps, cross-sections, 3D illustrations and legends (i.e., recognize map patterns; assess contact relationships; evaluate sedimentary, igneous, metamorphic and/or structural history) and propose a geological history.
- Interpret and evaluate structural and geological history from rocks, maps, geophysical information and reports.
- Distinguish between observations and interpretations. Write and explain accurately and concisely about rocks, map areas or projects; justify and assess conclusions.

Conflicts with Course Requirements:

Students with conflicts for **ANY** course requirement (lab, quiz, etc.) due to illness or otherwise **MUST** be reported to the instructor **PRIOR** to the due date when possible. If this is not possible contact regarding a deferral must be made within **24 hours** of the deadline.

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 your instructor** prior to the deadline or **within 24 hours after the deadline** (e.g., via email) to make arrangements. Otherwise, 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.

Student Accommodation Processes:

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: <http://carleton.ca/equity/wp-content/uploads/Student-Guide-to-Academic-Accommodation.pdf>

Religious 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: <http://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 <https://carleton.ca/pmc/> or 613-520-6608 or pmc@carleton.ca for a formal evaluation. Contact your PMC coordinator to send your instructor your Letter of Accommodation at the beginning of the term. You must also contact the PMC no later than two weeks before the first in-class scheduled test or exam requiring accommodation (if applicable). **After requesting accommodation from PMC, contact and/or meet with your instructor directly as soon as possible to ensure accommodation arrangements are made.**

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 is 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: <http://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>

For more information on academic accommodation, please contact the departmental administrator or visit:

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

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.

Recording policies of video conference activities:

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 Integrity Policies and Plagiarism:

Sanctions are severe and are strictly enforced. The instructor is required to report all incidents (or suspected incidents) directly to the Dean of Science.

- *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.

Faculty of Science Academic Integrity Policy: <https://science.carleton.ca/students/academic-integrity/>

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

Plagiarism:

Plagiarism is presenting, whether intentionally or not, the ideas, expression of ideas, or work of others as one's own. Plagiarism includes reproducing or paraphrasing portions of someone else's published or unpublished material, regardless of the source, and presenting these as one's own without proper citation or reference to the original source. Examples of sources from which the ideas, expressions of ideas or works of others may be drawn from include but are not limited to: books, articles, papers, literary compositions and phrases, performance compositions, chemical compounds, art works, laboratory reports, research results, calculations and the results of calculations, diagrams, constructions, computer reports, computer code/software, and material on the internet. This includes copying of material from websites or other publications that is incorporated into assignments, reports, or other submissions for grading. Borrowing someone else's answers, unauthorized possession of tests or answers to tests, or possession of material designed in answering exam questions, are all subject to university policy regarding instructional offences.

For this course (and all other courses at Carleton), it is extremely important to understand that you cannot copy and paste material from websites or publications into assignments/labs turned in on Brightspace or any answer boxes on Brightspace. This is plagiarism, and it is easy to spot during grading of assignments. When formulating an answer to an assignment question, be sure to reword the material from websites or publications into your own words, then type that into the answer boxes. Identification of plagiarised material in an assignment answer will result in an automatic zero points for that question. Repeated instances of plagiarism will result in harsher consequences that may include zero on entire an entire assignment, reduction of course final grade, withdrawal from course, letter of reprimand from the Dean of the Faculty of Science.

I encourage students to work together on labs. **HOWEVER**, each student must submit answers to questions in their own words, not the words used by another student that you are working with. Be sure that you and your co-worker(s) word your submitted answers differently.

Academic dishonesty, in whatever form, is destructive to the values of the university, and risks harming the university's reputation as place of learning and innovation. Furthermore, it is unfair and discouraging to those students who pursue their studies honestly. Additional details regarding the Carleton University Academic Integrity policy: <http://carleton.ca/secretariat/wp-content/uploads/Academic-Integrity-Policy.pdf>

Course Behavior/Expectations:

I expect your course behavior to always reflect respect for all members of the course. You should be prepared to participate in classroom activities, ask questions and answer questions in class and lab. *Personal electronic devices should not be distracting you or your classmates during lecture, lab or during field trips.* Outside of scheduled lecture and lab times, you are expected to spend at least 5-6 hours per week on this course with lecture and lab readings, quizzes, studying, etc.

- **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, textbook & lab manual, hand lens, scale, compass, protractor, calculator, graph and tracing paper, stereonet, fine point pencils with hard 2H pencil leads, pencil sharpener, eraser, colored pencils.
- **Email Geoff.Pignotta@carleton.ca or send a message right away or within 24 hrs** of the deadline to advise of absences due to illness, emergencies or other difficulties.
- **Regularly check the Brightspace webpage, course outline and my Carleton emails for a synopsis of the weekly rollout including:** structural themes of the week, office hours, reading assignments, laboratories and their deadlines, required resources and tools to have at hand for each class or lab
- **Participate in the weekly lectures:** come to class with the resources required for the in-class exercise; engage with in-class activities and the posted resources.
- **Participate in the weekly laboratories:** come to the labs with the required resources; engage with the instructors and classmates
- **Complete and submit laboratory and reading assignment quizzes on time.**