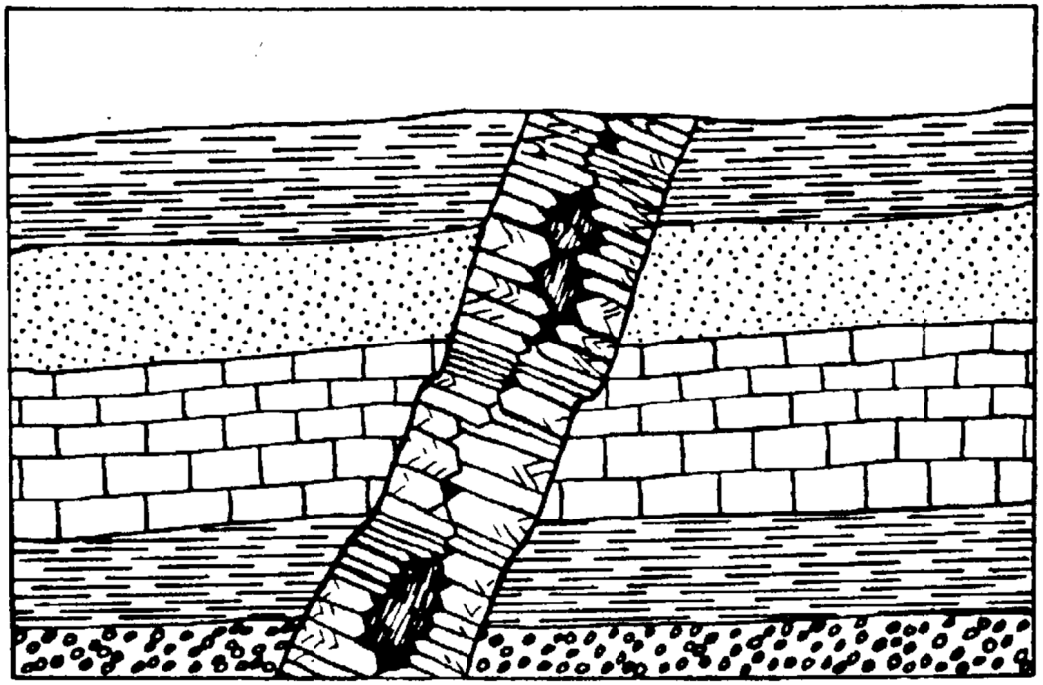
Lab Report Guidelines



FIELD TRIP TITLE
Lab Report (Lab #6)

Submitted to:
Professor Simone Dumas

For the course
Introduction to Earth Materials
(GEO1115)

By:
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uOttawa

L'Université canadienne
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I. Format of the report

Your lab report should have the following components*[1,2]:

1. **Title page** (see example on previous page; indicate your section: A, B, C, or D).
2. **Introduction**: paragraph describing the location, the date, the weather conditions, the major rock types observed, etc. Any detail that might be helpful if you wanted to send your field assistant back to this site many years from now and expect him/her to do this same lab exercise.
3. **Objectives** (these will be stated in the lab handout): feel free to write them in your own words and add to the ones provided.
4. **Answers to the questions**: make sure to label your answers (with the number and/or letter of the associated question), and to provide complete and detailed answers that fully reflect your reasoning and comprehension.
5. **Conclusion**: paragraph summarizing what you have learned during this laboratory and synthesizing the major geological features that were observed/discussed.
6. **References** (if applicable).

*[1] Each section of your report must be clearly identified with a title. For example, you must write the title "Introduction" and then write your introductory paragraph.
*[2] No marks are given for having sections 1, 2, 3, 5, and 6, but up to 10% will be taken off if one or several are missing or inadequate.

N.B: Up to 10% will also be taken off for unsatisfactory grammar (e.g. spelling, syntax) and/or quality of presentation (clarity, neatness).

II. Field observations (tips)

General rule: use your observations to support your interpretations! Observations are what you should first write down in your field note book. You then use your observations to write a geological report where you add in some interpretation based on these field observations.

Examples of observations*[3]:

General:

- type of rock (igneous, sedimentary, metamorphic)
- composition (identified minerals)
- thickness of units / formations
- nature of contact between two units
- deformation (e.g. folds, faults, fractures)
- colour (sometimes useful)
- weathering level
- veins
- where the unit or formation fits in the geological history of the Ottawa area

*[3] Observations should be objective and involve a minimum of interpretation.

Sedimentary rocks:

- sedimentary structures (bed thickness, wave ripples, cross stratifications, grading, erosion surfaces…)
- sedimentary textures (size, shape, roundness, and sorting of grains…)
- individual beds: continuous or discontinuous? flat or undulating?
- fossils and/or trace fossils
- strata of the outcrop (global view): horizontal or inclined?

Metamorphic rocks:

- metamorphic textures and structures (e.g. crystal size, foliations…)

Igneous rocks:

- igneous textures (e.g. crystal size, modal proportions of minerals…)

Examples of interpretation*:

- Because of the cross-cutting relationship observed, we interpret event B to have happened at a later time than event A.
- Because of the bimodal crystal size present in the intrusion, it is inferred that crystallization happened in two stages: slowly at depth, and quickly near or at the surface.
- Wave ripples observed in section A suggest deposition in a shallow marine or lacustrine environment.
- The presence of fossil X which thrives in a hypersaline environments, suggests a restricted marine basin with high evaporation rates.
- The well-developed foliation, mineral assemblage, and abundant chlorite support the idea that the metamorphic rock observed falls within the greenschist facies and was likely formed at a T ~ 400°C and at P ~ 4 kbars.

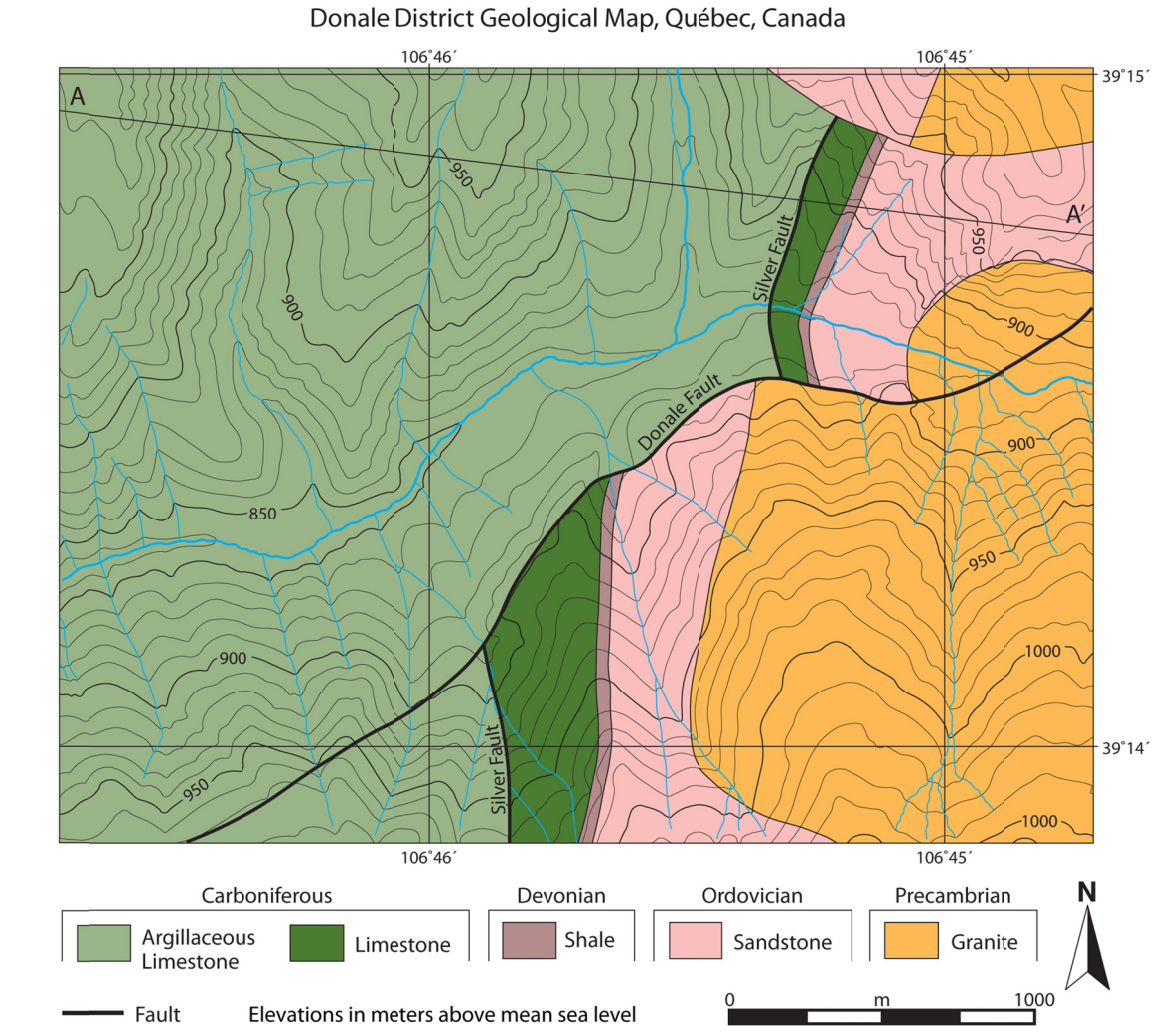
* These interpretations are subjective and must be based on the observations.

III. MAPS, CROSS-SECTIONS, AND SKETCHES

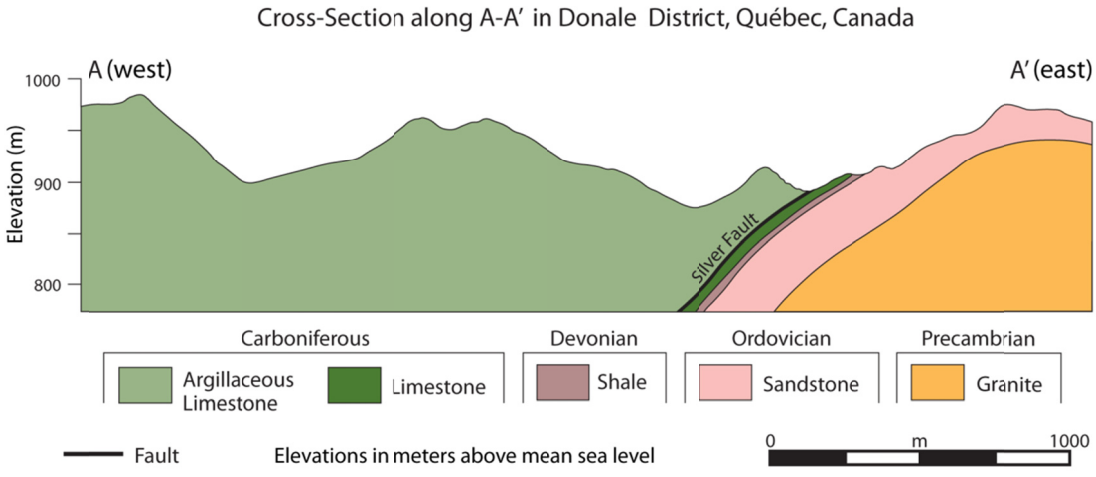
If included in the lab report, maps (plan/aerial view), cross-sections (side view), and sketches should always include the following elements:

1. **Title** (accurate and complete – *among others*, the title must include the name of the study site)
2. **Legend** (name, lithology, and age of rock formations, identification of any symbol used)
3. **Scale bar** (horizontal and vertical, if not equal)
4. **North arrow** for maps ; **orientation** (e.g. SW-NE) for cross-sections and sketches

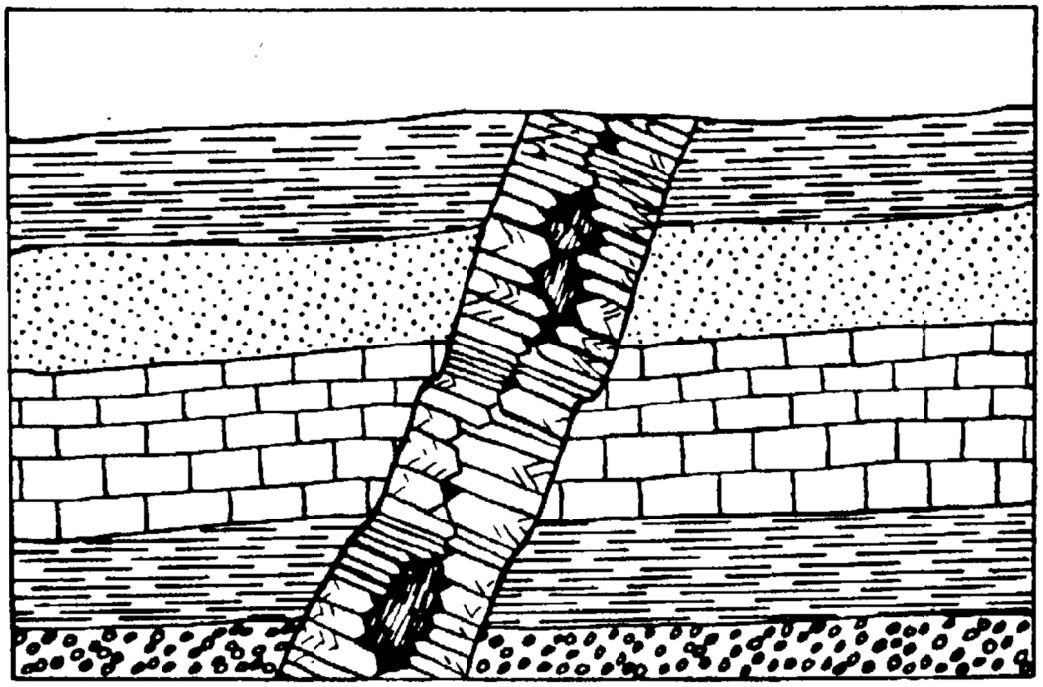
Example of a geological map (with its components):

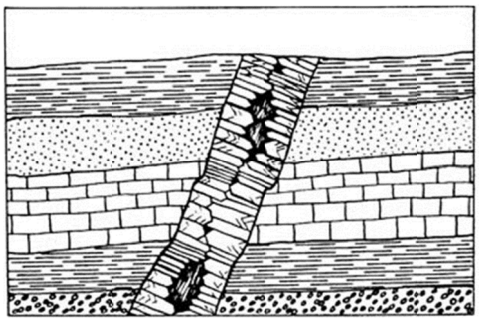


Example of a geological cross-section (with its components):



Laboratories





GEO1115
INTRODUCTION TO EARTH MATERIALS

LABORATORY 1 – FIELD TRIP
Geological walk around campus (/20)
University of Ottawa, Ottawa, ON

GEOLOGICAL CONTEXT
During this short walk around the campus, we will be stopping at various buildings and structures to discuss the links between the construction materials used and the Earth materials. (Bring your hand lense if you have one).

OBJECTIVES
1. To make some links between geology and your everyday life and thus see the relevancy of this course in your academic experience.

2. To write a geological report that follows the format outlined in class (see the section "Lab Report Guidelines" of your Lab Manual).

INSTRUCTIONS
1. Choose two construction materials that were observed during the geological campus walk, and discuss their relationship with Earth materials. (10 pts)

2. Draw a map (plan view) of the part of campus we visited. On that map, name and show the location of four materials of geological interest discussed during the lab (including the two materials you named in Question 1). Remember to include all the elements that must appear on a geological map (read part III of the "Lab Report Guidelines" in your Lab Manual, p.19). (10 pts)

N.B: Up to 10% of the mark will be taken off for unsatisfactory quality of presentation (clarity, neatness).