

**NRTH 5000 Northern Environments First Module  
Syllabus  
Instructor: Prof. Claudia Schröder-Adams (Earth Sciences)**

Welcome to the module “Northern Environments”. Your lectures will take place Wednesdays and Fridays from 2:35 to 4 PM in Southam Hall 311. You can reach me over CULEARN to set up a meeting if you wish to talk to me outside our lecture slots.

The module is organized in the following manner: each week entails an introductory lecture provided by me and a research lecture provided by guest scientists who work in Arctic Canada. Lectures will be followed by a question and answer period. I will upload scientific papers on the CULEARN site that are additional readings to deepen your understanding of each subject matter.

**Assignments**

Within the first week of class you will choose a related subject of your choice for a **term paper** and **presentation** towards the end of class. Your paper will be a literature review of your chosen area of research, summarizing the present position of the field, and giving explicit consideration of how the research engages with other themes in the course. I may ask you to consult other faculty to develop the reading list for your assignments. Please discuss your ideas with me early in the module, so that you have time to make these consultations and to develop your reading lists. The papers are to be about 3,000 words long (12 pages, double spaced, 12 pt, Times New Roman font). Your term paper is due on Friday, Nov. 10<sup>th</sup>, last day of module 1. We will determine in class the dates of your presentations. Your presentation will summarize the literature review. Please prepare an abstract and short reading list that will be distributed to other members of the class.

**Lecture Subjects**

1. week, Sept. 13:

*Introduction*

- Overview of The North
- Homeland, Frontier, Wilderness, Laboratory
- Physical Environments of Northern Canada

Sept. 15: Introductory lecture continued, no research lecture

2. week, Sept. 20:

*Geology of Northern Canada – Paleogeography and Sedimentary Basin Analysis*

- Arctic sedimentary basins and their geological records
- Sea-level history and causes

**Sept. 22: Research Lecture: Claudia Schröder-Adams: Arctic Greenhouse: A journey into a warm Cretaceous Polar Sea**

3. week, Sept. 27:

*Past and present climate change in Northern Canada*

- Climate drivers
- Climate indicators

**Sept. 29: Research Lecture: Dr. Natalia Rybczynski (CMN): Ecosystem response to Polar Climate Change**

4. week, Oct. 4:

*The Arctic Ocean*

- History of the Arctic Ocean and its topographic features
- Watermass distribution in the Arctic Ocean
- The Beaufort Gyre and its influence on global climate
- Marine gas hydrates

**Oct. 6: Research Lecture: Drs. Marc St-Onge and Chris Harrison (GSC, Ottawa)  
Tectonic map of Arctic Canada (TeMAC); Accurately tracking 4 billion years of crustal history (St-Onge)  
An Introduction to the mineral deposits of Arctic Canada (Harrison)**

5. week, Oct. 11:

*Glaciation of Northern Canada*

- Last glacial history
- The Significance of Beringia
- Sea-ice, ice caps and glaciers

**Oct. 13: Research Lecture: Dr. Derek Mueller: Glacial and sea-ice melting processes and ocean interactions**

6. week, Oct. 18:

*Permafrost*

- History and distribution of permafrost in northern Canada
- Controlling environmental parameters
- The active layer and its controlling factors
- Thawing of permafrost and its effects on landscapes
- Coastal erosion
- The future of permafrost under a warming climate
- Gas hydrates and earth warming

**Oct. 20: Research Lecture: Dr. Stephan Gruber: Permafrost research in the NWT.**

7. week, Nov. 1:

*Vegetation of Northern Canada, Past and Present*

- The Boreal Forest

**Student presentations**

**Nov. 3: Research Lecture: Dr. Jeff Sareela (CMN): Arctic Plants and their migration**

8. week, Nov. 8:

*Wildlife of Northern Canada*

- Arctic Fish and Bird

**Student presentations**

**Nov. 10: Research Lecture: Dr. Jennifer Provencher: Plastics in Arctic marine species.**

**Evaluation of entire program:**

Term papers (3 x 20%)	60%
In-class presentations (3 x 5%)	15%
Module participation (3 x 5%)	15%
Take-home examination	<u>10%</u>
	100%

**Plagiarism**

The University Senate defines plagiarism as “*presenting, whether intentionally or not, the ideas, expression of ideas or work of others as one’s own.*” This may include:

- 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;
- submitting a take-home examination, essay, laboratory report or other assignment written, in whole or in part, by someone else;
- using ideas or direct, verbatim quotations, or paraphrased material, concepts, or ideas without appropriate acknowledgment in any academic assignment;
- using another’s data or research findings;
- failing to acknowledge sources through the use of proper citations when using another’s works and/or failing to use quotation marks;
- handing in "substantially the same piece of work for academic credit more than once without prior written permission of the course instructor in which the submission occurs."

Plagiarism is a serious offence which cannot be resolved directly with the course’s instructor. The Associate Dean of the Faculty conducts a rigorous investigation, including an interview with

the student, when an instructor suspects a piece of work has been plagiarized. Penalties are not trivial. They may include a final grade of "F" for the course.

### **Academic Accommodation**

You may need special arrangements to meet your academic obligations during the term because of disability, pregnancy or religious obligations. Please review the course outline promptly and forward any requests for academic accommodation to the Instructors during the first two weeks of class, or as soon as possible after the need for accommodation arises.

Students with disabilities requiring academic accommodations in this course must register with the Paul Menton Centre for Students with Disabilities (PMC) for a formal evaluation of disability-related needs. Documented disabilities could include but are not limited to mobility/physical impairments, specific Learning Disabilities (LD), psychiatric/psychological disabilities, sensory disabilities, Attention Deficit Hyperactivity Disorder (ADHD), and chronic medical conditions. Registered PMC students are required to contact the PMC, 613-520-6608, every term to ensure that your Instructor receives your Letter of Accommodation, no later than two weeks before the first assignment is due or the first in-class test/midterm requiring accommodations. If you only require accommodations for your formally scheduled exam in this course, you must submit your request for accommodations to PMC by February xx, 2018.

You can visit the Equity Services website to view the policies and to obtain more detailed information on academic accommodation at <http://carleton.ca/equity/accommodation>.

**Cell phones and social media:** Students must turn off their cell phones before each class. Interruption of classes by users of cell phones is disruptive and distracting for instructors and students alike. Consultation of social media during classes is similarly inappropriate.

**Uploading 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 also protected by copyright and remain the intellectual property of their respective author(s).

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