

RE: New arctic field studies courses (EPSC373: Arctic geology, ATOC373: Arctic climate and climate change and GEOG373: Arctic geomorphology)

Three new courses are being proposed as a first step towards the creation of an Arctic Field Studies Semester. As a test of concept we plan to offer these courses as a 6 week Arctic field experience based at the Meadowbank gold mine operated by Agnico-Eagle Mines Ltd north of Baker Lake.

Why the Arctic? The Arctic is an environmentally sensitive, resource-rich area that covers almost 40% of Canada's landmass but holds less than 4% of the total population. Characterized by a harsh and rapidly changing climate dominated by ice and snow, unique and often poorly understood ecosystems, and landscapes dominated by frozen ground, the Arctic plays an important role in several global systems. Many aspects of the Arctic environment remain poorly understood and largely understudied. Driven by sovereignty, demand for natural resources and scientific uncertainty linked to climate change, Canada has made the Arctic a national priority. However a major challenge facing future activity in the Arctic is a shortage of trained and knowledgeable people familiar with both the scientific and cultural environment. Currently most students gain their first Arctic experience as a field assistant or graduate student entirely lacking in preparation and prone to costly mistakes. To avoid such mistakes by McGill graduates we propose and expanded program of courses based in the Arctic and the eventual creation of an Arctic Field Studies Semester.

The Arctic Field Studies Semester. Last year, Agnico-Eagle Mines Ltd. approached McGill about a possible endowment to support increased post-secondary science education in the Nunavut. A proposed Field Studies Semester involving McGill and Nunavut Arctic college students based at their Meadowbank mine north of Baker Lake (where they could provide logistics but no cash) was met with interest. In principle once the Arctic Field Studies Semester is fully developed it will involve 15-20 students (including 3-4 from Nunavut Arctic College's Environmental Technology program) based at the Meadowbank Mine for 9-10 weeks with 15 credits from 3 structured courses plus 6 credits of independent research. Currently the main departments are Geography, Earth & Planetary Sciences, and Atmospheric & Oceanic Sciences – but it will likely include other departments as it evolves. This initiative builds on the McGill's history of leadership in northern science, its highly successful field semester programs and Nunavut Arctic College's Environmental Technology program. The primary goal of a field studies semester is to move the classroom into the field and to teach using first hand examples in a hands-on learning environment. Also fundamental to this style of learning is a focus on key issues. The key issues for the Arctic are a function of its cold polar environment, its cultural makeup, an economy driven by natural resources, its remote geography and climate change. These issues are not mutually exclusive; rather they are interconnected through a complex network of feedbacks such that changes in one area have significant impacts of the other areas. The primary mission of the McGill Arctic Field Studies Semester will be to train a future generation of northern specialists who are able to understand and address the rapidly changing polar environment in a scientifically and culturally responsible manner.