



Umeå University  
Department of Physics  
SE-901 87 Umeå, Sweden  
Phone: +46 90 786 0000

Course certificate  
Course code: 5FY105

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# Arctic Science

4.5 ECTS-credits. Bachelor level.

Main field of study: Physics

## Georges Labreche

Date of birth: 9 April 1984

has, in accordance with the provisions of the Higher Educational Ordinance (1993:100)  
completed the above course and been awarded the following grade

Grade: Pass with Distinction

Date: 30 March 2018

### Aims and main content of the course

(details of the sub-courses comprising the course are set out overleaf)

The aim of the course is to give students studying on traditional science and engineering degree programmes, at universities in Sweden and abroad, insight into atmospheric and space-related phenomena that one can observe in the arctic environment during the winter months. Effects of climate change on the arctic environment are presented. The course also contains an introduction to snow and ice-related phenomena. The course is given in Kiruna and the language of instruction is English.

On behalf of the Office of the Vice Chancellor

Carol Norberg

The grades awarded for the course are either Pass, Pass with Merit or Pass with Distinction. An academic year is equivalent to 40 weeks of full-time study and comprises 60 higher education credits. One term of full time studies corresponds to thirty higher education credits. This course certificate is in accordance with a syllabus issued on 1 January 2008.

**Part 1, Theory, 1.5 ECTS-credits**

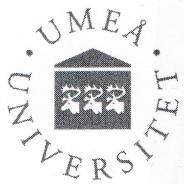
Introduction to magnetospheric physics, auroral physics and observations, optical phenomena in polar regions, mother of pearl clouds, snow and ice-related phenomena as well as the climate's impact on the arctic environment. The course also includes a presentation of the research activities in the Kiruna area and study visits. A number of compulsory assignments are included.

**Part 2, Practical part, 1.5 ECTS-credits**

This part consists of a practical course that concludes with a written report.

**Part 3, Project work, 1.5 ECTS-credits**

Project work including a written report.



Umeå University  
Department of Physics

Official Transcript of Records for

GEORGES LABRECHE  
( Civic registration number 840409-T756 )

Courses	Credits	Grade	Date
Arctic Science A	4.5	5	2018-03-30
Total sum:	4.5	credits	

The above is an excerpt from the register of student records.

Umeå, August 17, 2018

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Carina Gunillasson

60 credits represent a full academic year.