



UNIVERSITY
OF MANITOBA



Curriculum for Courses at the master program in Nature and Health science (30 ECTS-points)

In Nuuk

The program will consist of five courses on health and environment which will be offered by the Uarctic partners: University of Greenland (UoG), Aarhus University (AU), and Greenland institute of Natural Resources (GINR) in autumn 2016 in Nuuk, and hosted by University of Greenland as well as the Greenland institute of Natural Resources. The course package is aimed at students with a background in Health science and Natural sciences.

In order to facilitate the incorporation of the students in a master program we offer a full semester of minimum 30 ECTS. This way the student will not have to supplement with courses at their home university in order to fulfil the 30 ECTS demand for a semester. The program suggested here will also provide the option of choosing between different courses.

Course: Health Science in Greenland, Health Service Research & Telemedicine and Ethics in small populations - Graduate level

Course responsible: Lise Hounsgaard, Michael Lynge Pedersen and Lasse Overballe Nielsen

Aim: The aim of this course is to provide the students with knowledge on health science in arctic regions. The course will introduce the students to how Health Service Research is performed in Greenland and how telemedicine is an important part of the Greenlandic healthcare system. Finally, the course will present ethical challenges when doing research in indigenous populations. As a part of the course the students have to attend the Nuna –med conference.

Exam: The exam will consist of a research protocol handed in by groups based on case work throughout the course. Furthermore, the case work will be evaluated with an oral presentation by each group.

- *Assessment: pass / fail*
- *Censorship: intern*
- *Number of lessons: 70 lessons*
- *Extent: 10 ECTS*
- *Syllabus: 800 pages*
- *Time: September 1 - October 14 2016*
- *Language: Nordic*

Course: Arctic Environmental Medicine: Reproduction and Cancer and Risk Assessment - Graduate level

Course responsible: Eva Bonefeld -Jørgensen AU & Henning Sloth-Pedersen (AU/UoG)

Aim: The aim of these lectures is to introduce to the human health effects from exposure to environmental pollutants and risk assessment.

Research, theoretical and experimental based teaching in human health effects and environmental contaminants and risk assessment. The course will include studies on hormone- and endocrine as well as immune disruptions.

- *Number of lessons: 35*
- *Test/ examines: Assignment*
- *Censorship: Intern*
- *Extent: 5 ECTS*
- *Syllabus: to be announced*
- *Time: November 28 - December 16 2016*
- *Language: English*

Course: Long range transport of contaminants to the Arctic - Graduate level

Course responsible: Kaj Mantzius Hansen (AU) and Henrik Skov (AU)

Aim: The aim of the course is to give the student knowledge of how contaminants from sources at mid-latitudes are transported to the Arctic via oceanic and atmospheric pathways for ending in the Arctic food web. The focus will be on persistent organic pollutants and heavy metals. The course will include an introduction to the characteristics of the Arctic atmosphere, ocean and climate system. It will also contain an introduction to analysis of monitoring data of contaminants obtained from measurement stations in the high Arctic and the processes that control their dynamics in the Arctic and how they can be studied using atmospheric and marine transport models.

- *Exam: Project report / oral exam*
- *Assessment: 7-point grading scale*
- *Censorship: intern*
- *Number of lessons: 42*
- *Extent: 5 ECTS*
- *Syllabus: To be announced*
- *Time: October 17 - November 25 2016*
- *Language: English*

Course: Mineral resources in the Arctic: Environmental impacts and technologies - Graduate level

Course responsible: Janne Fritt-Rasmussen (AU)/ Pernille E. Jensen (DTU)

Aim: The aim of the course is to provide the students with skills to assess the environmental impacts of natural resources extraction and be able to suggest relevant technologies to prevent and mitigate environmental effects with special focus on Arctic conditions. 2 group reports will be part of the course.

- *Exam: Oral (oral exam on e.g. videolink. The exam date will be arranged with lecturer)*
- *Assessment: 7-point grading scale*
- *Censorship: extern*
- *Number of lessons: e-learning*
- *Extent: 5 ECTS*
- *Syllabus: Selected chapters from Lottermoser, Bernd: "Mine Wastes, Characterization, Treatment and Environmental Impacts", and articles and reports*
- *Time: October 17 - November 25 2016 (e-learning)*
- *Language: English*

Project training (5 ECTS)

Course responsible: Lise Hounsgaard, Gert Mulvad og Liseslotte Sørensen

Contents: The students choose a subject and plan a project presentation, write an abstract and a make poster presentation and present an oral presentation.

- *Assessment*
- *Censorship: intern*
- *Number of lessons: 20 lessons*
- *Extent: 5 ECTS*
- *Syllabus: 400 pages*
- *Time: January 9 - January 30 2017*

Responsible

- Lise Lotte Sørensen, Associated Professor. Institute for Bioscience - Arctic Research Centre AU
- Gert Mulvad, Honorary doctorate UoG
- Lise Hounsgaard, Professor. Institute for Nursing and Health Science, UoG &SDU
- Michael Lynge Pedersen Associated Professor. Institute for Nursing and Health Science, UoG
- Eva Bonefeld -Jørgensen Professor. Department of Public Health, Centre for Arctic Health &Unit of Cellular and Molecular Toxicology, AU
- Henning Sloth-Pedersen Associated Professor. Institute for Nursing and Health Science, UoG &AU
- Kaj Mantzius Hansen Scientist, Department of Atmospheric Environment, National Environmental Research Institute (AU)
- Henrik Skov, Professor. Department of Atmospheric Environment. AU
- Janne Fritt-Rasmussen A C Institute for Bioscience - Arctic Research Centre AU
- Pernille E. Jensen (DTU)