



UNIVERSITY OF THE ARCTIC

## Circumpolar Studies Program



### **Advanced Emphasis Title:** Circumpolar Ecosystems, Resource Use and Management

**Institution:** [University of Tromsø](#)

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**Start Date:** January (Only available in the Spring Semester)

**Delivery Method:** Only onsite

**Application deadline:** January (Only available in the Spring semester)

**Credits:** 30 ECTS (15 North American credits at most institutions)

**Requirements:** At least one year of undergraduate study. Preferably core courses in the Bachelor of Circumpolar Studies or biology. This is a natural sciences based programme.

#### **Advanced Emphasis Description:**

This program will give students an understanding of the relationships between ecosystems, resource use and cultural adaptations in the circumpolar north. Concepts related to the ecosystem approach and to the UN's Millennium Ecosystem Assessment program will be examined and discussed in the context of natural conditions and social organisation in circumpolar areas. Students will learn to analyse ecosystem changes, accompanied by the social transformations which underlies these changes. Students have the possibility to emphasize either assessment of ecosystem changes or natural resource economy in this program.



### **Program rationale**

The aim is to go more into depth on land ecosystems and resource management than the BCS courses. There is a need for a course which will give students an understanding of changes and possibilities of adaptations in circumpolar land areas. Students taking this course will be better equipped to combine international guiding principles for resource management with the natural conditions and specific needs of northern communities.

### **How the program adheres to the Arctic founding principles**

- The program addresses educational needs in the north by giving students a better understanding of northern land ecosystem, changes in resource conditions and possible adaptations to the changes which are taking place. Students will be better equipped to form resource management policies which are relevant in circumpolar areas.
- The ecosystem approach is an interdisciplinary concept, and the advanced emphasis includes multiple disciplines.
- The course deals with traditional local economic and cultural adaptations, and will also be integrated in lectures about ecosystem management.
- The course deals with implementation of sustainable development in circumpolar areas, and critical reflections of its implication for communities.
- Students will learn more about similarities and differences between regions in the north and will therefore be more prepared to cooperate with northern neighbours.
- The course deals specifically with ecosystem approach and its significance in circumpolar areas. To our knowledge there are no courses which emphasizes these issues in Scandinavia, particularly the biological part.

### **Courses:**

NAB2010 Ecosystems, Resource Use and Management in circumpolar areas is obligatory (20 ECTS). Students have the possibility to choose between two courses: NAB2008 Scenario analysis in northern areas (10 ECTS) or SOK0002 Basic environmental and resource economics (10 ECTS). NAB2008 includes a selection of scenario studies by the student from different areas in the circumpolar North.

### ***NAB2010 Ecosystems, Resource Use and Management in Circumpolar Areas (20 ECTS)***

**Course description:** The course deals with the concepts and tools which form the scientific basis for the ecosystem approach and the UN's Millennium Ecosystem Assessment program. The ecosystem concept and characteristics of circumpolar ecosystems will be examined, with a particular emphasis on ecosystem changes and social transformations driving these changes. The relationship between ecosystems, resource use and cultural adaptations will be assessed, including concepts that have significance for the management of natural resources in circumpolar ecosystems. The course will introduce students to methods of assessing ecosystem changes, as well as central tools to analyze social transformation and conflicts.

**Course credits:** 20

**Course structure:** Lectures (80 hr). PC laboratory work (30 hr). Seminars/Training (34 hr). Semester assignment: Students will work with selected case studies to analyse ecosystem changes, social transformations and conflicts. In the PC lab students will solve tasks by using digital maps and other sources of information about the circumpolar north. A report from each PC lab will be submitted for approval. Students will take active part in seminars through discussions and by presenting their semester assignments.



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**Evaluation:** Students will be evaluated by the semester assignment (30%) and an oral exam (70%). PC lab reports should be approved. The marking scale ranges from A (best) to F (fail).

**Semester:** Spring

**Teaching Language:** English

**Prior Education:** It is recommended that students have taken basic courses in biology or core courses in the Bachelor of Circumpolar Studies.

**Curriculum/Literature:** Readings will be presented at the first lecture.

### ***NAB2008 Scenario Analysis in the Northern Areas (10 ECTS)***

**Course description:** The course builds on NAB2001 which introduces students to concepts and tools for analysing changes in northern ecosystems. The aim of this course is to give students experience in scenario analysis, which implies the use of existing data and knowledge for predicting future changes. Students will select areas and tasks for the scenario analysis and supervision will be given through seminars.

**Course structure:** Seminars/training in scenario analysis (40 hr). Semester assignment: Students select scenarios studies from different areas in the circumpolar North. It is possible for students to work in teams. Scenario analysis and the project work will be discussed in weekly seminars. Students will also receive individual supervision on their project work.

**Evaluation:** Students will be evaluated by the scenario analysis and an oral exam. The marking scale ranges from A (best) to F (fail).

**Semester:** Spring

**Teaching Language:** English

**Prior Education:** NAB2001 Ecosystems, resource use and management in circumpolar areas.

**Curriculum/Literature:** Readings will be presented at the first lecture.

### ***SOK 0002 Basic Environmental and Resource Economics (10 ECTS)***

**Course description:** The main goal for this course is to give the students an understanding of how economic analyses can be important in the study of the use of natural resources and environment. It is also important to understand the effects of environmental and resource policies on the natural resources itself and human welfare. The course will first give an introduction to the following microeconomic topics:

Consumer behaviour, Producer behaviour, Perfect competition in the short and long run and Monopoly, including Natural monopoly. The main part of the course will cover basic theories in environmental and resource economics, with emphasis on problems concerning management of natural resources and natural environments. The course will cover externalities, public goods, renewable and non-renewable resources, and policies that may be introduced to influence resource use. The welfare economic consequences of different policies will be discussed. The course will also cover economic aspects of sustainable development.

**Course structure:** Lectures: 40 hours, Seminars: 10 hours. Term paper and presentation/discussion of paper in class. Students will also receive individual supervision on their project work.

**Evaluation:** Students will be evaluated by one final written exam. The marking scale ranges from A (best) to F (fail).

**Semester:** Spring

**Teaching Language:** English

**Prior Education:** None

**Curriculum/Literature:** Readings will be presented at the first lecture.