

SYLLABUS

Polar Atmosphere 7.5 credits F7014R

Polaratmosfären

Course syllabus admitted: Spring 2024 Sp 3 - Present

DECISION DATE
2023-02-15

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Polaratmosfären

Second cycle, F7014R

Education level	Grade scale	Subject	Subject group (SCB)
Second cycle	G U 3 4 5	Rymd- och atmosfärsvetenskap	Space Technology

Entry requirements

Knowledge in atmospheric physics like F7004R Atmospheric Physics 7.5 credits or equivalent.

Good knowledge in English equivalent to English 6.

Selection

The selection is based on 30-285 credits

Course Aim

After completing the course, the student shall be able to explain phenomena and critically evaluate fundamentals of the Earth's polar atmosphere in order to be able independently propose relevant research and development projects as well as to support the ongoing technological development and community planning from a climate perspective in the Arctic region.

Knowledge and understanding

The student shall acquire knowledge about the Earth polar atmosphere and space weather as well as their significance for the Arctic region. The student shall be able to explain polar atmospheric phenomena and processes, qualitative and quantitative evaluate them, as well as to determine their significance from the holistic perspective.

Competence and skills

The student shall show capability to critically and independently formulate the problems as well as perform calculations for the physical processes within the given timeframe. This is done via problem solving and work during the seminars. The student shall be able to motivate, plan and perform scientific experiments during the practical work. The student shall be able to critically select and evaluate relevant scientific and technical information within the subject via the literature survey. Presentation skills for international scientific events are trained via mini conference. The student shall demonstrate social skills and be able to work effectively in a group during the seminars and practical.

Judgement and approach

The student shall have insight about polar atmosphere significance for sustainable development. This is done via evaluation of the relevant technological and ethic aspects with a focus on sustainable development and the Swedish national equality goals.

Work during the seminars shall support the student in identification of further knowledge needs and taking responsibility for own knowledge progress.

Contents

The course contains and deals with the fundamentals and phenomena in the Earth's polar atmosphere: radiative and dynamical processes, content and structure, ice clouds, snow and its influence on the atmosphere, space weather and its effects on the atmosphere.

The course covers current research and development in polar atmosphere and space weather with a focus on sustainable development as well as concept like equality and gender mainstreaming.

Realization

Each course occasion's language and form is stated and appear on the course page on Luleå University of Technology's website.

The course includes teaching and learning activities such as lectures, seminars, project work and home assignments that give correct interpretation of the physical phenomena as well as training in experimental techniques, report writing in English and oral presentation in English.

Examination

If there is a decision on special educational support, in accordance with the Guideline Student's rights and obligations at Luleå University of Technology, an adapted or alternative form of examination can be provided.

The course is assessed through a written tests, home assignments, oral presentation in English during seminars and a project work. In order to pass the course it is required that all compulsory tasks are completed satisfactory with a grade "Pass".

The final grade for the course reflects the results obtained for all compulsory tasks and is given after all compulsory tasks are approved. The grading scale for the course is 3, 4, 5.

Unauthorized aids during exams and assessments

If a student, by using unauthorized aids, tries to mislead during an exam or when a study performance is to be assessed, disciplinary measures may be taken. The term "unauthorized aids" refers to aids that the teacher has not previously specified as permissible aids and that may assist in solving the examination task. This means that all aids not specified as permissible are prohibited. The Swedish version has interpretative precedence in the event of a conflict.

Course offered by

Department of Computer Science, Electrical and Space Engineering

Modules

Code	Description	Grade scale	Cr	Status	From period	Title
0002	Project work	U G#	1.5	Mandatory	A17	
0003	Assignments	U G#	1.5	Mandatory	A17	
0004	Written tests	G U 3 4 5	3	Mandatory	A21	
0005	Oral presentation	U G#	1.5	Mandatory	A21	

Last revised

by Robert Brännström 2023-02-15

Syllabus established

by Jonny Johansson, HUL SRT 2017-06-15