Faculty of Science

NGEA16, Dynamic meteorology and numerical weather prediction, 7.5 credits

Dynamisk meteorologi och numeriska väderprognoser, 7,5 högskolepoäng

First Cycle / Grundnivå

Details of approval

The syllabus was approved by Study programmes board, Faculty of Science on 2013-01-09 to be valid from 2013-01-09, spring semester 2013.

General Information

The course is a compulsory course for first-cycle studies for the scientific Bachelor's programme, specialisation Meteorology at Lund's university. The course is also given as a freestanding course. The course is given in English.

Language of instruction: English

Main field of studies	*Depth of study relative to the degree requirements*
Physics	G1F, First cycle, has less than 60 credits in first-cycle course/s as entry requirements

Learning outcomes

Knowledge and understanding

On completion of the course, the student should be able to:

- understand how the Earth's surface influences dynamic processes in the atmosphere
- understand basic methods used in numerical weather forecasting models
- account for the quasi-geostrophic equation system.

Skills and ability

On completion of the course, the student should be able to:

- use scale analysis
- formulate simple models of barocline instability
- account for methods for production of numerical weather forecasting models
- account for deviations between different set of numerical models.

Judgement and approach

On completion of the course, the student should:

- understand and evaluate the importance of different processes in the atmosphere and be able to distinguish these
- understand and evaluate the physical background for numerical weather forecasting models.

Course content

The course gives an introduction to processes in the boundary layer and advanced knowledge of the dynamics of the atmosphere and the structure of movements in the atmosphere. The course treats numerical modelling within meteorology and climatology, their approaches and differences. The course gives the basics in quasi-geostrophic equations for description of large-scale movements in the barocline atmosphere.

Course design

The teaching consists of lectures, calculation exercises and seminars. Participation in seminars and calculation exercises are compulsory.

Assessment

Examination takes place via written assignments and presentations in seminars during the course and through a written examination. For students who have failed the regular examination, additional occasion in close connection to this is offered.

Subcourses that are part of this course can be found in an appendix at the end of this document.

Grades

Marking scale: Fail, Pass, Pass with distinction.
A Pass grade in the entire course requires approved examination and passed written assignments.

Entry requirements

Requirements for admission to the course are, basic requirements for higher education, Physics equivalent to FYSA21 and basic knowledge in climatology equivalent to the course "The Climate system" (NGEA06, renamed NGEA21 from spring 2015). Participation in the course Fluid dynamics (FYTA14) running in paralell with Dynamic meteorology and previous participation in the course Numerical weather forecasts (NGEA16) is recommended.

Further information

The course may not be included in a higher education qualification together with: METC01

Subcourses in NGEA16, Dynamic meteorology and numerical weather prediction

Applies from V13

1301 Dynamic Meteorology and Numerical Weather Prediction, 7,5 hp
Grading scale: Fail, Pass, Pass with distinction