Due to Covid 19, the education and evaluation methods may vary from the information displayed in the schedules and course details. Any changes will be communicated on Ufora.

Course
Specifications

Valid as from the academic year 2019-2020

Course size
(nominal values; actual values may depend on programme)

Credits 3.0  Study time 90 h  Contact hrs 15.0 h

Course offerings and teaching methods in academic year 2019-2020

A (semester 1)  English  Gent  lecture  15.0 h

Lecturers in academic year 2019-2020

De Backer, Hugo  WE05  lecturer-in-charge

Offered in the following programmes in 2019-2020

Postgraduate Studies in Weather and Climate Modeling  crdts offering

3  A

Teaching languages

English

Keywords

Moist thermodynamics, radiation, convection, precipitation, turbulence, orographic interactions

Position of the course

This course can be seen as the complement of the course “Dynamical Meteorology”: it covers the branch of meteorology which is not explicitly described by the classical equations of motion inside the atmosphere. The content of the course is as follows: (1) the study of a number of physical phenomena occurring in the atmosphere (such as radiation, cloud microphysics and precipitation); (2) the study of a number of dynamical processes which act on such a small scale that they are not resolved by most NWP models (such as convection and turbulence). The course will limit itself to the discussion of the various processes while their implementation in a numerical model will be discussed in the course “Numerical Weather Prediction”. (3) Interactions between chemical composition and dynamics of the atmosphere (ozone).

Contents

1. Thermodynamics
2. Radiation in the atmosphere
3. Cloud microphysics
4. Precipitation
5. Land surface models
6. Turbulence
7. The boundary layer
8. Ozone in the atmosphere

Initial competences

Elementary calculus, basic thermodynamics and physics.

Final competences

The student has insight in some essential physical and small scale dynamical atmospheric phenomena.

Conditions for credit contract

Access to this course unit via a credit contract is determined after successful competences assessment

Conditions for exam contract

This course unit cannot be taken via an exam contract

Teaching methods

(Approved)
Lecture
Extra information on the teaching methods
   Where possible making use of distant learning facilities (Ufora).

Learning materials and price
   Slides on Ufora

References
   An introduction to Boundary Layer Meteorology, Roland B. Stull, Kluwer Academic
   Publishers, 1999

Course content-related study coaching
   Support via Ufora (forum), e-mail and private discussions upon appointment.

Evaluation methods
   end-of-term evaluation

Examination methods in case of periodic evaluation during the first examination period
   Written examination, open book examination

Examination methods in case of periodic evaluation during the second examination period
   Written examination, open book examination

Examination methods in case of permanent evaluation

Possibilities of retake in case of permanent evaluation
   not applicable

Calculation of the examination mark