

Universiteit van Pretoria Jaarboek 2017

BScHons Meteorologie (02240074)

Duur van studie 1 jaar

Totale krediete 135

Programinligting

Hierdie inligting is slegs in Engels beskikbaar.

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Renewal of registration

1. Subject to exceptions approved by the Dean, on the recommendation of the head of department, and in the case of distance education where the Dean formulates the stipulations that will apply, a student may not sit for an examination for the honours degree more than twice in the same module.
2. A student for an honours degree must complete his or her study, in the case of full-time students, within two years and, in the case of after-hours students, within three years of first registering for the degree and, in the case of distance education students, within the period stipulated by the Dean. Under special circumstances, the Dean, on the recommendation of the head of department, may give approval for a limited extension of this period.

In calculating marks, General Regulation G.12.2 applies.

Apart from the prescribed coursework, a research project is an integral part of the study.

Toelatingsvereistes

In bykomend tot die bepalings van Algemene Regulasies G.1.3 en G.62, 'n toepaslike baccalaureusgraad 'n voorvereiste is: 'n kandidaat met 'n gemiddeld van minder as 60% in die hoofvakke nie in die finale jaar van die baccalaureus-graad sal slegs met toegelaat word die goedkeuring van die Dekaan op aanbeveling van die departementshoof. Bykomende voorwaardes kan deur die departementshoof voorgeskryf word.

'n BSc in Meteorologie graad of

'n toepaslike baccalaureusgraad met die tweede jaar wiskunde en eerste jaar fisika.

WKD 155 Atmosferiese struktuur en prosesse

WKD 164 Klimaat en weer van Suider-Afrika

WKD 261 Fisiese weerkunde

WKD 263 Inleiding tot dinamiese meteorologie

WKD 352 Atmosferiese vortisiteit en divergensie

WKD 361 Kwasi-geostrofiese analise

WKD 366 Beginsels van weervoorspelling

WTW 114 Calculus *

WTW 128 Calculus * EN WTW 126 Lineêre algebra * OF WTW 124

WTW 218 Calculus *

WTW 248 Vektoranalise *

PHY 171 Eerste kursus in fisika * of PHY 114 en 124

GMA 220 Afstandswaarneming

(* Of 'n ekwivalente kwalifikasie soos goedgekeur deur die hoof van die departement.)

Ander programspesifieke inligting

Appropriate honours modules from the other disciplines in the Department or Faculty may be taken on approval by the Honours coordinator or Head of Department.

Slaag met lof

The BScHons degree is awarded with distinction to a candidate who obtains a weighted average of at least 75% in all the prescribed modules and a minimum of 65% in any one module.



Kurrikulum: Finale jaar

Minimum krediete: 135

Kernmodules

Oorsig van tropiese en midbreedtemeteorologie 731 (WKD 731)

Modulekrediete 12.00

Voorvereistes Geen voorvereistes.

Kontaktyd 1 besprekingsklas per week, 1 lesing per week

Onderrigtaal Module word in Engels aangebied

Akademieorganisasie Geografie, Geoinf en Meteor

Aanbiedingstydperk Semester 1 of Semester 2

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

An overview of the weather and climate of the tropics and the mid-latitudes. Air masses. Instability and cloud formation. Weather systems of the tropics and mid-latitudes. Analysis of weather systems by utilising remote sensed data.

Dinamiese weerkunde 706 (WKD 706)

Modulekrediete 16.00

Voorvereistes Geen voorvereistes.

Kontaktyd 1 lesing per week, 1 praktiese sessie per week

Onderrigtaal Module word in Engels aangebied

Akademieorganisasie Geografie, Geoinf en Meteor

Aanbiedingstydperk Semester 1 of Semester 2

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

Atmospheric oscillations: Linear perturbation theory (shallow water gravity waves, inertia gravity waves, Rossby waves). Baroclinic instability. Two-layer model. Energetics of Baroclinic waves. Zonally averaged circulation. Angular momentum budget. Lorenz energy cycle. Programming in meteorology.

Navorsingsprojek 763 (WKD 763)

Modulekrediete 35.00

Voorvereistes Geen voorvereistes.

Kontaktyd 1 lesing per week, 1 besprekingsklas per week

Onderrigtaal Module word in Engels aangebied

Akademieorganisasie Geografie, Geoinf en Meteor



Aanbiedingstydperk Jaar

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

Introduction to the philosophy of scientific research. Hypothesis testing. Reporting of scientific research. Identification of an appropriate research project. Compilation of a research proposal. Literature survey. Acquisition and manipulation of information. Introduction to innovative strategy and research management. Preparation of a research report (or paper). Presentation of research findings.

Numeriese modellering: toepassings 704 (WKD 704)

Modulekrediete 12.00

Voorvereistes Geen voorvereistes.

Kontaktyd 1 besprekingsklas per week, 1 lesing per week

Onderrigtaal Module word in Engels aangebied

Akademiese organisasie Geografie, Geoinf en Meteor

Aanbiedingstydperk Semester 1

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

Initial atmospheric state, observation network, data assimilation, initialization, parameterisation, post-processing. Ensemble methods, probability forecasting, forecast verification. Global circulation models, limited-area and mesoscale models, variable resolution models, dispersion models. Seamless prediction. Practical applications.

Radar meteorology 707 (WKD 707)

Modulekrediete 12.00

Kontaktyd 1 lesing per week, 1 besprekingsklas per week

Onderrigtaal Module word in Engels aangebied

Akademiese organisasie Geografie, Geoinf en Meteor

Aanbiedingstydperk Semester 1 of Semester 2

Module-inhoud

Basic principles and characteristics of the weather radar. The influence of the atmosphere on the propagation of electro-magnetic waves. Weather radar equation. The influence of attenuation on observations. The measurement of precipitation with a radar. Doppler Radar. Convective storm analysis with radar.

Satellite meteorology 733 (WKD 733)

Modulekrediete 12.00

Kontaktyd 1 besprekingsklas per week, 1 lesing per week

Onderrigtaal Module word in Engels aangebied

Akademiese organisasie Geografie, Geoinf en Meteor



Aanbiedingstydperk Semester 1 of Semester 2

Module-inhoud

Overview of the basic principles of satellite imagery. Types of meteorological satellites. Basic principles of radiation. The different images available, their resolution and the advantages and limitations of each image. Image interpretation.

Keusemodules

Seisonale klimaatmodellering 703 (WKD 703)

Modulekrediete 12.00

Voorvereistes Geen voorvereistes.

Kontaktyd 1 besprekingsklas per week, 1 lesing per week

Onderrigtaal Module word in Engels aangebied

Akademiese organisasie Geografie, Geoinf en Meteor

Aanbiedingstydperk Semester 1 of Semester 2

Module-inhoud

Fundamentals of seasonal forecasting. The El Niño/Southern Oscillation. Empirical orthogonal functions. Canonical correlation analysis. Empirical forecast models practical. Sea-surface temperature models. Fully coupled and two-tiered general circulation modelling. Dynamical and empherical downscaling techniques.

*Hierdie inligting is slegs in Engels beskikbaar.

Significance testing using Monte Carlo techniques. Modelling pitfalls. User application forecasting. Projections of decadal and multi dacadal climate anomalies.

Mesoscale meteorology 734 (WKD 734)

Modulekrediete 12.00

Kontaktyd 1 lesing per week, 1 besprekingsklas per week

Onderrigtaal Module word in Engels aangebied

Akademiese organisasie Geografie, Geoinf en Meteor

Aanbiedingstydperk Semester 1 of Semester 2

Module-inhoud

An introduction to mesoscale meteorology. Surface mesoscale features, instability, severe storm classification and thunderstorms, flooding and flash flooding events.

Wolkdinamika 781 (WKD 781)

Modulekrediete 12.00

Voorvereistes Geen voorvereistes.

Kontaktyd 1 besprekingsklas per week, 1 lesing per week

Onderrigtaal Module word in Engels aangebied



Akademiese organisasie Geografie, Geoinf en Meteor

Aanbiedingstydperk Semester 1 of Semester 2

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

Scaling and interpretation of equations of motion for mesoscale processes. The role of stability and other trigger actions on initial cloud formation and the evolution of clouds. Shallow and deep convective processes. Tropical and mid-latitude cloud generation processes and characteristics. Cloud splitting. Parameterisation of radiation and heat in atmospheric models. Microphysics parameterisations in numerical models.

Selected themes 736 (WKD 736)

Modulekrediete 12.00

Kontaktyd 1 lesing per week, 1 besprekingsklas per week

Onderrigtaal Module word in Engels aangebied

Akademiese organisasie Geografie, Geoinf en Meteor

Aanbiedingstydperk Semester 1 of Semester 2

Module-inhoud

A module on an aspect or aspects of meteorology not covered in the existing options with special emphasis in Cloud microphysics and Basic concepts of numerical modelling.

Grenslaagweerkunde 719 (WKD 719)

Modulekrediete 12.00

Voorvereistes Geen voorvereistes.

Kontaktyd 1 lesing per week, 1 besprekingsklas per week

Onderrigtaal Module word in Engels aangebied

Akademiese organisasie Geografie, Geoinf en Meteor

Aanbiedingstydperk Semester 1 of Semester 2

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

Introduction to, and the importance of the boundary layer. Structure of the boundary layer. Transfer of heat (molecular and turbulent). Impacts of the turbulent nature of the boundary layer on the dynamics of atmospheric motions. Closure and boundary layer parameterisation. Applications to air pollution dispersion.

Die inligting wat hier verskyn, is onderhewig aan verandering en kan na die publikasie van hierdie inligting gewysig word.. Die [Algemene Regulasies \(G Regulasies\)](#) is op alle fakulteite van die Universiteit van Pretoria van toepassing. Dit word vereis dat elke student volkome vertroud met hierdie regulasies sowel as met die inligting vervat in die [Algemene Reëls](#) sal wees. Onkunde betreffende hierdie regulasies en reëls sal nie as 'n verskoning by oortreding daarvan aangebied kan word nie.