POSTGRADUATE STUDIES IN WEATHER AND CLIMATE MODELING

Organised jointly by Ghent University and the Royal Meteorological Institute of Belgium

33 ECTS CREDITS – LANGUAGE: ENGLISH – DEGREE: POSTGRADUATE CERTIFICATE

COURSE CONTENT

The study of weather and climate is intrinsically linked. Climate on the one hand can be considered as average weather, and on the other hand, if the climate changes, the impact will be primarily felt through extreme weather cases. Scientific progress in these fields heavily depends on the development and the use of numerical atmospheric models. Additionally, the focus in climate science is shifting from global climate change to the study of regional climate impact, which demands the development of high-resolution numerical models. The same type of modelling techniques are used to develop models for climate studies as the ones for weather applications.

The aim of this postgraduate programme is to prepare scientists in the most efficient way to become active as a researcher in the modern discipline of atmospheric modeling for weather and climate applications. The content of the programme is deeply rooted in the current scientific challenges encountered within the international ALADIN and HIRLAM consortia. These consortia develop and maintain the European HARMONIE system that is used for making numerical weather predictions and climate studies.

This postgraduate is organised in cooperation with the RMI (Royal Meteorological Institute). To be in touch with the current research, the courses are given by (international) specialists working at the RMI, Belgocontrol, VITO, ALADIN, HIRLAM ...

COURSE STRUCTURE

In the first semester the programme will provide the necessary basic training in meteorology, climatology and numerical analysis, that forms the basis for the atmospheric sciences. In the second semester, the postgraduate will build further on this basis to introduce the students to atmospheric modelling, data assimilation, predictability, remote sensing and chemical air pollution models.

The weekly course sessions are concentrated in two afternoons, typically Monday and Tuesday. Data assimilation and atmospheric modeling are two exceptions and are taught intensively during one or two weeks in the second semester. The schedule is made after deliberation with the students.

CAREER PERSPECTIVES

The ultimate goal is to prepare young scientists for research in international projects such as THORPEX (www.wmo.int/thorpex). This 10-year international global atmospheric research and development programme was established by the WMO (in 2003) and is aimed at reducing and mitigating the impact of disasters by transforming forecasts into information for decision making. This includes:

- extending the range and accuracy of weather forecasts;
- development of warnings for decision-making;
- assessing the impact of weather forecasts in the strategies to minimise the impact of disasters.

The Postgraduate Studies in Weather and Climate Modeling offers the essential courses needed to start research in meteorology and numerical weather prediction.

FACULTY OF SCIENCES

2018–19

WE21

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TOELATINGSVOORWAARDEN VOOR HOUDERS VAN EEN VLAAMS DIPLOMA

Rechtstreeks:

- Ma wiskunde
- Ma fysica en sterrenkunde
- Ma sterrenkunde
- Ma fysica
- Ma geologie / Ma Geology
- Ma geografie
- Ma geomatica en landmeetkunde
- Ma ingenieurswetenschappen (alle) / Ma Engineering
- Ma bio-ingenieurswetenschappen (alle)
- Ma wiskundige informatica
- Ma statistiek
- Ma chemie / Ma Chemistry
- Ma aardobservatie

  opleiding(en) oude structuur:
  - de corresponderende diploma's oude structuur

Na geschiktheidsonderzoek:

- Ma biochemie en biotechnologie / Ma Biochemistry and Biotechnology
- Ma biologie / Ma Biology
- Ma Marine and Lacustrine Science and Management
- Ma Nematology
- Ma industriële wetenschappen (alle)
- Ma milieutechnologie en milieuwetenschappen
- Ma Ecological and Marine Management
- Ma Environmental Sanitation
- Ma Physical Land Resources
- Ma Statistical Data Analysis
- andere masteropleiding

  opleiding(en) oude structuur:
  - de corresponderende diploma's oude structuur

TAAL

Je voldoet aan de taalvoorwaarden op basis van je Vlaams diploma.

PRAKTISCHE INFORMATIE

Studieprogramma:

https://studiegids.ugent.be
> faculteiten > opleidingstypes > ga naar de opleiding van je keuze

Infomomenten

Masterbeurs
www.ugent.be/masterbeurs

Studiegeld

Meer informatie vind je op:
www.ugent.be/studiegeld

Contact
Ghent University - Faculty of Sciences
Department of Physics and Astronomy
Campus Sterre, Krijgslaan 281 (S9), B-9000 Gent
Dr. Steven Caluwaerts
steven.caluwaerts@ugent.be
www.ugent.be/we/wcm

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ADMISSION REQUIREMENTS FOR INTERNATIONAL DEGREE STUDENTS

The postgraduate course requires physical and mathematical background from the students. A scientific background on bachelor or master level is recommended. Send a motivated request to Steven Caluwaerts (see contact). When your diplomas and background are judged positively, an admission letter will be written for you.

LANGUAGE

More information regarding the required knowledge of English:
www.ugent.be/we/wcm

PRACTICAL INFORMATION

Study programme

www.ugent.be/coursecatalogue
> by Faculty > Programme types > select your programme

Application deadline

Before the application can be started up, you need to be pre-academically selected by the programme coordinator.
www.ugent.be/we/wcm

Enrolling institution

Ghent University

Tuition fee

More information can be found on
www.ugent.be/tuitionfee

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