

CLIM2M - Introduction

Introduction

- . Concevoir des solutions dans le domaine de la gestion des ressources et de l'aménagement du territoire.
- . Tester les solutions et évaluer les impacts suivant des objectifs de développement durable.
- Mobiliser les compétences nécessaires pour réaliser un travail de recherche en climatologie.
- . Comprendre la dynamique de l'atmosphère, de l'océan, et du système climatologique dans son ensemble.
- . Appréhender les techniques de modélisation du climat, en couvrant les aspects théoriques et techniques.
- . Savoir analyser et interpréter des données climatiques.
- . Mener une analyse critique sur des questions liées aux changements climatiques (passés et futurs) et en comprendre et anticiper impacts sur la société et l'environnement de façon à devenir un acteur responsable dans le monde d'aujourd'hui.

Programme structure

Le programme comprises core subjects of 60 credits, 30 credits for the focus and 30 credits for optional subjects.

CLIM2M Programme

Detailed programme by subject

CORE COURSES [60.0]

- Mandatory
- ✘ Optional
- △ Not offered in 2024-2025
- ⊙ Not offered in 2024-2025 but offered the following year
- ⊕ Offered in 2024-2025 but not the following year
- △ ⊕ Not offered in 2024-2025 or the following year
- Activity with requisites
- 🌐 Open to incoming exchange students
- 🚫 Not open to incoming exchange students
- [FR] Teaching language (FR, EN, ES, NL, DE, ...)

Click on the course title to see detailed informations (objectives, methods, evaluation...)

Year

1 2

Module 1 : Methods for geographical and spatial analyses (10 credits)

● LGEO2211	Advanced statistical methods in geography	Christian Hafner	[FR] [q1] [30h+30h] [5 Credits] 🌐	x	x
● LGEO2185	Advanced geo-processing	Antoine Stevens (compensates Kristof Van Oost)	[FR] [q2] [30h+30h] [5 Credits] 🌐	x	x

Module 2: Physical geography and global change (10 credits)

● LGEO2140	Global environmental challenges in the Anthropocene	Veerle Vanacker Veerle Vanacker (compensates Kristof Van Oost)	[FR] [q2] [30h+30h] [5 Credits] 🌐		
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RESEARCH FOCUS [30.0]

- Mandatory
- ✘ Optional
- △ Not offered in 2024-2025
- ⊙ Not offered in 2024-2025 but offered the following year
- ⊕ Offered in 2024-2025 but not the following year
- △ ⊕ Not offered in 2024-2025 or the following year
- Activity with requisites
- 🌐 Open to incoming exchange students
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Year

1 2

o Content:

○ LGEO2997	Séminaire d'encadrement du mémoire	Michel Crucifix	FR [q1] [15h] [5 Credits] 🌐	x	
○ LGEO2998	Thesis tutorial	Ahmed Adriouèche Qiuzhen Yin	EN [q2] [15h] [3 Credits] 🌐		x

OPTIONS

- > [List of elective courses](#) [en-prog-2024-clim2m-lclim920o]
 > [Optional courses](#) [en-prog-2024-clim2m-lsc100o]

LIST OF ELECTIVE COURSES

- Mandatory
- ⊗ Optional
- △ Not offered in 2024-2025
- ⊙ Not offered in 2024-2025 but offered the following year
- ⊕ Offered in 2024-2025 but not the following year
- △ ⊕ Not offered in 2024-2025 or the following year
- Activity with requisites
- 🌐 Open to incoming exchange students
- 🚫 Not open to incoming exchange students
- [FR] Teaching language (FR, EN, ES, NL, DE, ...)

Click on the course title to see detailed informations (objectives, methods, evaluation...)

Year

1 2

o Content:

o Elective courses specific to climatology orientation

Students choose a minimum of 22 credits from this list:

⊗ LPHYS2264	Oscillations and instabilities in the climate system	Michel Crucifix	EN [q2] [30h] [5 Credits] ⊙ 🌐 > French-friendly	X	X
⊗ LPHYS2265	Sea ice-ocean-atmosphere interactions in polar regions	Thierry Fichefet	EN [q2] [30h] [5 Credits] ⊕ 🌐 > French-friendly	X	X
⊗ LPHYS2267	Paleoclimate dynamics and modelling	Qiuzhen Yin	EN [q2] [22.5h+7.5h] [5 Credits] 🌐 > French-friendly	X	X
⊗ LPHYS2268	Forecast, prediction and projection in climate science	François Massonnet	EN [q2] [22.5h+7.5h] [5 Credits] 🌐 > French-friendly	X	X
⊗ LPHYS2269	Remote sensing of climate change	Emmanuel Dekemper	EN [q2] [30h] [5 Credits] ⊕ 🌐 > French-friendly	X	X
⊗ LCLIM2170	Field in climatology 1	Veerle Vanacker	EN [q2] [60h+30h] [5 Credits] ⊙ 🌐 > English-friendly	X	X
⊗ LCLIM2270	Field in climatology 2	Sylvain Trigalet	EN [q2] [60h+30h] [5 Credits] ⊕ 🌐	X	X
⊗ LCLIM2280	Operational meteorology	Michel Crucifix (coord.)	EN [q2] [] [8 Credits] 🌐	X	X

⊗ Other elective courses

Students complete their program by choosing teaching units from this list or from the list of elective courses specific to climatology. With the approval of the jury, students may integrate into their program 2nd or 3rd bachelor's degree courses not taken during the bachelor's degree, as well as courses taken at other universities.

⊗ LPHYS2161	Internal geophysics of the Earth and planets		EN [q1] [22.5h+7.5h] [5 Credits] △ 🌐 > French-friendly	X	X
⊗ LPHYS2260	Geodesy and GNSS (Global Navigation Satellite System)		EN [q2] [30h] [5 Credits] ⊙ 🌐 > French-friendly	X	X
⊗ LPHYS2266	Physics of the upper atmosphere and space	Viviane Pierrard	EN [q2] [22.5h+7.5h] [5 Credits] 🌐 > French-friendly	X	X
⊗ LGEO2400	Internship in a professional setting	Sophie Vanwambeke (coord.)	EN [q1 or q2] [15h] [4 Credits] 🌐	X	X
⊗ LENVI2005	Climate change: impacts and solutions		EN [q2] [30h] [3 Credits] 🌐	X	X

OPTIONAL COURSES

- Mandatory
- ✂ Optional
- △ Not offered in 2024-2025
- ⊖ Not offered in 2024-2025 but offered the following year
- ⊕ Offered in 2024-2025 but not the following year
- △ ⊕ Not offered in 2024-2025 or the following year
- Activity with requisites
- 🌐 Open to incoming exchange students
- 🌐 Not open to incoming exchange students
- (FR) Teaching language (FR, EN, ES, NL, DE, ...)

Click on the course title to see detailed informations (objectives, methods, evaluation...)

These credits are not counted within the 120 required credits.

Year

Course prerequisites

There are no prerequisites between course units (CUs) for this programme, i.e. the programme activity (course unit, CU) whose learning outcomes are to be certified and the corresponding credits awarded by the jury before registration in another CU.

The programme's courses and learning outcomes

For each UCLouvain training programme, a [reference framework of learning outcomes](#) specifies the skills expected of every graduate on completion of the programme. Course unit descriptions specify targeted learning outcomes, as well as the unit's contribution to reference framework of learning outcomes.

CLIM2M - Information

Access Requirements

Master course admission requirements are defined by the French Community of Belgium Decree of 7 November 2013 defining the higher education landscape and the academic organisation of courses.

General and specific admission requirements for this programme must be satisfied at the time of enrolling at the university.

Unless explicitly mentioned, the bachelor's, master's and licentiate degrees listed in this table or on this page are to be understood as those issued by an institution of the French, Flemish or German-speaking Community, or by the Royal Military Academy.

In the event of the divergence between the different linguistic versions of the present conditions, the French version shall prevail.

SUMMARY

- > [General access requirements](#)
- > [Specific access requirements](#)
- > [University Bachelors](#)
- > [Non university Bachelors](#)
- > [Holders of a 2nd cycle University degree](#)
- > [Holders of a non-University 2nd cycle degree](#)
- > [Access based on validation of professional experience](#)
- > [Access based on application](#)
- > [Admission and Enrolment Procedures for general registration](#)

Specific access requirements

In addition to the access conditions described below, candidates will have to provide proof of a sufficient command of the French language (level B1 of the CEFR, Common European Framework of Reference for Languages).

Students who wish to be admitted on the basis of a dossier (see tables below) are invited to consult the [criteria for the evaluation of application](#).

University Bachelors

Diploma	Special Requirements	Access	Remarks
UCLouvain Bachelors			
Bachelor in Geography : General		Direct access	
Bachelor in Physics	Si l'étudiant a suivi la Minor in Geography	Direct access	In some cases, the UCLouvain Enrolment Office, after reviewing their online enrolment or re-enrolment application, will ask the students concerned to provide an enrolment authorisation from the faculty/ school.
Bachelor in Bioengineering		Direct access	
Others Bachelors of the French speaking Community of Belgium			
Tous les bacheliers de la CfB		Direct access	
Bachelors of the Dutch speaking Community of Belgium			
		Direct access	
Foreign Bachelors			
		Access based on application	

Non university Bachelors

> Find out more about [links](#) to the university

Diploma	Access	Remarks
<p>BA en agronomie, orientation agro-industries et biotechnologies - crédits supplémentaires entre 45 et 60</p> <p>BA en agronomie, orientation agronomie des régions chaudes - crédits supplémentaires entre 45 et 60</p> <p>BA en agronomie, orientation environnement - crédits supplémentaires entre 45 et 60</p> <p>BA en agronomie, orientation forêt et nature - crédits supplémentaires entre 45 et 60</p> <p>BA en agronomie, orientation systèmes alimentaires durables et locaux - crédits supplémentaires entre 45 et 60</p> <p>BA en agronomie, orientation techniques et gestion agricoles - crédits supplémentaires entre 45 et 60</p> <p>BA en agronomie, orientation techniques et gestion horticolas - crédits supplémentaires entre 45 et 60</p> <p>BA en agronomie, orientation technologie animalière - crédits supplémentaires entre 45 et 60</p>	<p>Les enseignements supplémentaires éventuels</p>	<p>90 0 -1 0 31.044 peut être intégré dans le cursus - Unaliac</p>

Teaching method

The teaching strategy takes its inspiration from the idea of "taking responsibility for one's own learning" and offers a wide range of learning situations. The climatologist is at the centre of different scientific fields: physical modeling, teledetection, hydrology and the management of natural resources. The integration between human and physical geography is emphasized. The courses are focused on problems in society: environmental changes, mobility, urbanization, globalization and developing countries. Activities such as seminars and integrated exercises are carried out in advanced areas of geographical research. Ability to use advanced methods of geographical analysis is an important objective of the training: geographical modeling, geographical information systems and satellite teledetection.

Practical work gives students the opportunity of dealing with concrete problems and finding solutions to them, often in small groups. The Master in Climatology is notable for the multidisciplinary background of the teaching staff. Studies will be done with lecturers in geography and physics. Activities such as seminars and integrated exercises are designed so that students progressively encounter the complexity of the climatic system. Students in the last year of the Master should therefore be able to use and understand the climatic

