

UNIVERSITÉ DE FRIBOURG SUISSE  
FACULTÉ DES SCIENCES

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UNIVERSITÄT FREIBURG SCHWEIZ  
MATHEMATISCH-NATURWISSENSCHAFTLICHE FAKULTÄT

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Curriculum for the obtention of the Degree of

**Master of Science  
in Geography**

**“Global Change and Sustainability”**

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# 1 General remarks

This curriculum introduces the course structure of the MSc study programme in geography, which focuses on issues of global change and sustainability. It is based on the regulations of the Faculty of Science governing the acquisition of the title of Master of Science (hereafter called Regulations).

## 1.1 Academic Titles and Programme of Study

The Faculty of Science of the University of Fribourg awards the official academic title of **Master of Science in Geography**, subsequently called **MSc**, to students who have successfully completed their respective course of studies and obtained the title of Bachelor of Science (BSc) or a recognized equivalent.

The **programme of study of the MSc** in Geography represents a scientific course of studies, allowing specialization in the field of global change and sustainability. The MSc in Geography gives access to various professional activities in research, education, environmental consulting and protection, spatial planning, documentation, and administration. Besides, the MSc is the entry requirement for scientific work and deepened scientific education leading to a doctorate. When accompanied by a subsidiary subject in a discipline figuring on higher secondary school curricula, the MSc allows students to follow a complimentary didactics programme leading to the qualification as a higher secondary school teacher (*Fähigkeitszeugnis für das Höhere Lehramt II*).

Persons in possession of a BSc in Geography of the University of Fribourg or any other Swiss university are admitted to the MSc course of studies (Art. 7 of the Regulation). Persons in possession of a BSc degree in a different subject or of equivalent degrees (e.g. after graduating from an engineering school) can also be admitted to the MSc study programme by a decision of the Faculty of Science to be made in each individual case. Provisional admission can be granted, which then depends on the fulfilment of additional requirements (cf. Section 2.5).

## 1.2 Course structure

The MSc study programme in geography spans one and a half years (three terms), corresponding to 90 ECTS credits.

Focusing on « Global Change and Sustainability », it integrates courses in natural and human sciences, offering a specialisation in one of the two orientations. The course programme consists of the following teaching modules:

- A *Core module* totalling 18 ECTS.
- A *Master thesis module*, comprising the Master thesis, a preliminary and a final seminar. Altogether it comprises 40 ECTS.
- A *Specialisation module* in either physical sciences or in humanities (socio-economic module). Each of these two modules consists of compulsory courses and course options destined to bolster the specialisation. It comprises 14 ECTS.
- A *Supporting courses module*, offering additional teaching in geography or other disciplines related to the Master orientation. The selection of the courses is guided by the specialisation and must be approved of by the supervisor of the Master thesis. Its volume amounts to 18 ECTS.

The chief course language will be mainly English, with French and German on certain occasions. For exams and written work (project reports, MSc thesis, etc.) students can choose between German, French, or English.

The MSc courses can only be assessed and recognized after successful completion of the BSc.

### 1.3 Acquired skills

The aim of the studies leading to the award of an MSc in Geography is to deepen knowledge and perfect competence in the chosen field and at the same time develop skills in scientific English. Thus, at the end of the course, a student will have shown that he/she can apply their knowledge to accomplish a research project and will have learned how to work independently or how to integrate into an interdisciplinary research team. The award of the degree requires creative and self-critical talents as well as the ability to communicate ideas and work both in English and their native language.

### 1.4 Assessment of Courses and Acquisition of ECTS Credits

Acquisition of ECTS credits occurs in three steps: assessment of the courses, grouping of courses into validation package, and awarding the respective credits.

Exercises are assessed following the criteria given at the beginning of the course. Admission to the exam corresponding to a lecture course can be subject to meeting the requirements of the corresponding exercise class. **Assessment** of lectures is made by an oral and/or written exam, whose type and duration are regulated in this curriculum. Exams take place during the official exam periods (sessions) in spring, summer, and autumn. Students register in GESTENS within the stipulated delays for each exam according to the on-line procedure. The marks range from 6 (highest mark) to 1 (lowest mark). An exam marked below 4 can be repeated once at the next exam session at the earliest.

**Validation packages** comprise multiple, separately assessed courses. Art. 18 of the Regulation determines the number of these package whereas this curriculum determines their content.

ECTS points are credited according to art. 19 of the Regulation if

- the weighted average of the exam marks of a validation package is at least 4. The weighting is given by the number of ECTS points assigned to a course.
- the assessment criteria of courses not examined (practical work, exercises, etc.) are met.

Under these prerequisites, validation packages are validated and the corresponding ECTS points are converted into ECTS credits. By request, the Dean's office issues confirmations in which exam results and credits awarded are acknowledged (Art. 22 of the Regulation), provided the exam fee has been paid.

### 1.5 Ethics and Science

Ethical principles are an integral part of a scientific education. Accepted international conventions must be respected during research and upon the writing up of any scientific work whether it be a project, a lecture, a thesis or a report. In particular, every external source of information (articles, lectures, web pages, etc.) must be correctly cited.

## 1.6 Regulations and additional Information

Detailed information about studying computer science can be found in the following documents, which can be obtained from the Office of the Department of Computer Science, chemin du Musée 3, CH-1700 Fribourg:

- Regulation concerning the admission to the University of Fribourg [Réglement d'admission de l'Université de Fribourg / *Zulassungsreglement der Universität Freiburg*; ([www.unifr.ch/rectorat/reglements](http://www.unifr.ch/rectorat/reglements))]
- Regulation of 2 February 2004 for the Obtainment of the Bachelor of Science and Master of Science
- Curriculum for the basic and subsidiary subjects of the Faculty of Science of the University of Fribourg
- Study guide of the University of Fribourg
- University calendar of the University of Fribourg

Finally, each student obtains a personal and secure space that can be reached using an individual university e-mail password. This space can be reached by the link "Connexion" on web page [www.unifr.ch/science/gestens](http://www.unifr.ch/science/gestens) and allows inscription to courses and exams, access to exam results, the initiation of the process of attestation, etc.

## 2. Master of Science

[Version 2007 validation packages: MSc1-GG.0410, MSc2-GG.0500]

### 2.1 Courses units

#### Core module

<i>Code</i>	<i>Course</i>	<i>h/week</i>	<i>ECTS</i>	<i>term</i>	<i>Assessment (examination / duration)</i>
GG.0401	Introduction to Global Environmental Change	2	3	autumn	written / 60 min.
GG.0402	Methods for Environmental Analysis (RS + Spatial Analysis)	2	3	autumn	oral / 15 min.
GG.0403	Sustainability	2	3	autumn	written / 60 min.
GG.0404	Drivers behind environmental and social issues	2	3	autumn	oral / 15 min.
GG.0405	Natural hazards and industrial risks	2	3	autumn	written / 60 min.
GG.0408	Conservation biogeography	2	3	autumn	written / 60 min.
<b>Total</b>			<b>18</b>		

#### Master thesis module

<i>Code</i>	<i>Course</i>	<i>h/week</i>	<i>ECTS</i>	<i>term</i>	<i>Assessment (examination / duration)</i>
GG.0410	Master Thesis seminar (preliminary)		2	autumn	Presentation
GG.0501	Master Thesis seminar (final)		2	autumn	Presentation / 20 min.
GG.0502	Master Thesis		36		Thesis
<b>Total</b>			<b>40</b>		

#### Physical Sciences Module

<i>Code</i>	<i>Course</i>	<i>h/week</i>	<i>ECTS</i>	<i>term</i>	<i>Assessment (examination / duration)</i>
<b>Compulsory courses</b>			<b>12</b>		
GG.0431	Introduction to Environmental Modelling (lecture + practical)	2	3	autumn	Project
GG.0432	Environmental Physical Geodata (from field to analysis)	2	6	spring	Project
GG.0435	Advanced Geomorphology	2	3	spring	written / 60 min.
<b>Options</b>			<b>2</b>		
GG.0436	Dendrogeomorphology	2	3	spring	Project
GG.0437	Cartography in Geomorphology		3	spring	Project
GG.0438	Seminar in Geomorphology		2	spring	Project
GG.0439	Seminar in Physical Geography		2	spring	Project
<b>Total</b>			<b>14</b>		

#### Socio-economic Module

<i>Code</i>	<i>Course</i>	<i>h/week</i>	<i>ECTS</i>	<i>term</i>	<i>Assessment (examination / duration)</i>
<b>Compulsory courses</b>			<b>11</b>		
GG.0467	Globalization, development and socio-economic change	2	3	spring	written / 60 min.
GG.0462	Environmental Social Geodata (from field to analysis)	2	6	spring	Project
GG.0466	Environmental Issues from a Soc. Sc. Perspective	2	2	spring	Project

<i>Options</i>				<b>3</b>	
GG.0469	Seminar in Human Geography	2	2	autumn	Project with note
GG.0470	Seminar in Sustainable	2	2	spring	Project with note
GG.0465	Global Change and Human Rights Issues	2	3	spring	oral / 15 min.
<b>Total</b>				<b>14</b>	

## Supporting Courses Module

<i>Course</i>	<i>h/week</i>	<i>ECTS</i>	
<b>English</b>			
– English for science I	2	3	autumn
– English for science II	2	3	spring
<b>Geography</b>			
– Non selected courses from the Specialization Modules			
<b>Other disciplines</b>			
Courses can also be chosen from other departments of the Faculty of Sciences, from other faculties of the University of Fribourg as well as from other universities in Switzerland or abroad, with the consent of the supervisor of the Master thesis. Courses that have been assessed on the occasion of another study plan cannot be chosen again.			
<b>Total</b>		<b>18</b>	

## 2.2 Course contents of the MSc « Global Change and Sustainability »

### 2.2.1 Lecture courses

The lectures of the *core module* propose a basic training in the field of global change. They present the problem in an integrated way (GG.0401), natural and human factors involved in this process (GG.0403 to GG.0405 and GG.0408), and methods of generating and analysing geographical information (GG.402).

The lectures of the *specialization module* develop the study of either natural or socio-economic aspects (physical sciences and socio-economic modules respectively) and of their interactions in the global change process.

The lectures of the *supporting courses module* offer a wide range of fields and disciplines related to the process of global change. They allow the student to further broaden his/her specialization, to deal with additional and complementary themes and to approach them from different angles. The offer presented in the table can be completed by lectures in other faculties or universities. The choice of supporting courses must, however, be in relation to the Master thesis and must be approved of by the supervisor.

### 2.2.2 The seminars

The seminars (GG.0438, GG.0439, GG.0466, GG.0469 and GG.0470) request active participation during the meetings as well as producing a seminar paper. Every student must participate in the two seminars (GG.0410, GG.0501) related to the Master thesis, as outlined below.

### 2.2.3 The Master thesis

The preparation and the elaboration of the Master thesis are accompanied by two seminars. The first (GG.0410) shall allow the student to chose and define the topic of his/her research work; it will be organized during the first term of the Master programme. The second seminar (GG.0501) takes place during the third term of the Master programme; its role is to permit the student to

account of his/her progress in the research project and share his/her experience with his/her colleagues.

The Master thesis is credited with 36 ECTS; it initiates the student to scientific research, leading to a thesis on a particular theme linked to global change. Work shall begin during the second term and be completed by the end of the third term of the MSc programme, crowning the studies. It is a research work undertaken under supervision of a person with solid experience. This thesis helps the Master student to develop his/her liking and his/her aptitude for scientific research. The result is to be presented in written form as a research report and presented orally as a presentation of 20 minutes during the seminar (GG.0501). With the Master thesis, the student demonstrates his/her ability to embark on a scientific investigation and strengthens his/her specialization.

A Master thesis can be supervised by more than one person, but the principal supervisor must be a professor at the geography unit of the Department of Geosciences.

### 2.3 Examinations of the MSc and validation

The **validation package MSc1** comprises all lectures of the MSc core, specialization, and supporting courses modules. Its value is 50 ECTS credits.

The lectures of the *core* and *specialization modules* are assessed according to the following types of exams:

1. Written exams of 60 minutes for each of the following lectures: GG.0401, GG.0403, GG.0405, GG.0408, GG.0435, GG.0463, GG.0467 ;
2. Oral exams of 15 minutes for each of the following lectures: GG.0402, GG.0404, GG.0465 ;
3. A project (marked by the respective teacher) for each of the following lectures: GG.0431, GG.0432, GG.0436, GG.0437, GG.0438, GG.0439 GG.0462, GG.0466, GG.0469, GG.0470.

The assessments of the *supporting courses module* take place according to the information provided by the study plans of the departments concerned.

### 2.4 Master thesis and validation

The courses of the Master thesis module (GG.0410, GG.0501 et GG.0502) constitute the **validation package MSc2**. They are assessed in the following manner:

4. The Preliminary Master thesis seminar (GG.0410) is assessed through the participation in the meetings and an oral presentation of the Master thesis project;
5. The Final Master thesis seminar (GG.0501) is assessed through the participation in the meetings and the oral presentation (20 minutes) of the Master thesis;
6. The Master thesis – (GG.0502) is assessed by a mark between 6 (best) and 1 (worst). A pass is accorded if the mark is at least 4. A failed Master thesis can be repeated once on a different subject.

The title of **Master of Science in Geography “Global Change and Sustainability”, University of Fribourg (MSc)** is conferred upon the validation of the packages MSc1 and MSc2.

### 2.5 Admission procedure to the Master programme

Admission to the programme of Master in Geography « Global Change and Sustainability » is granted upon two conditions: the applicants have to comply with the admission criteria of Fribourg University (as defined by the Regulations for the Admission to the University of



Fribourg [*Reglement über die Zulassung an der Universität Freiburg / Règlement concernant l'admission à l'Université de Fribourg*]), and they must hold the title of Bachelor in Geography of Fribourg University or another degree considered equivalent by the Faculty of Science.

The Faculty draws up a list of those titles that are considered equivalent. Applicants with one of these titles will automatically be accepted. Applicants whose title is not included in this list can send the Faculty of Science an application letter. The final decision will be made by the *Admission Commission* of the Faculty, a body appointed by the Faculty Council.

Depending on the academic qualification, the Admission Commission can make its acceptance dependent on the fulfilment of complementary studies. If they are of a minor scope, they can be completed in parallel to the Master programme. Otherwise, applicants are admitted to a “pre-master programme” and can start with the master degree programme only after fulfilling the requirements initially laid down for the pre-master.

Students holding the title of Bachelor or a title judged equivalent by the Faculty in another discipline than geography must follow and successfully complete at least one of the two complementary programmes in Geography BSc-60 in order to be admitted the programme of Master in Geography « Global Change and Sustainability ». The courses of one of these two programmes, which have been frequented and assessed during former Bachelor studies, are recognised, as well as courses judged as equivalent. The remaining courses constitute the complementary programme and have to be assessed. If they are of a minor scope, they can be completed in parallel to the Master programme. Otherwise, applicants are admitted to a “pre-master programme” and can start with the master degree programme only after fulfilling the requirements initially laid down for the pre-master.