UCLouvain

ENVI2M

*2020 - 2021*

# Master [120] in Environmental Science and Management

**At Louvain-la-Neuve - 120 credits - 2 years - Day schedule - In French**
Dissertation/Graduation Project : **YES** - Internship : **YES**
Activities in English: **optional** - Activities in other languages : **NO**
Activities on other sites : **NO**
Main study domain : **Sciences**
Organized by: **Faculty of bioscience engineering (AGRO)**
Programme acronym: **ENVI2M** - Francophone Certification Framework: 7

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# ENVI2M - Introduction

## Introduction

# ENVI2M - Teaching profile

## Learning outcomes

The Masters in Environmental Sciences and Management is offered as a priority to students who have completed a Masters level course of study at one of the faculties in the science and technology sector, human sciences sector or health sciences sector, or at a college of further education. The admission requirements are those of an advanced Masters.

Teaching on environmental sciences and management offers both graduate students and professionals the opportunity to learn about the basic principles of environmental sciences and the management of environmental problems that are complex by nature and involve several disciplines.

The student programme is partially tailored to suit their initial training. Part of the programme is aimed at allowing them to acquire basic knowledge in the various disciplines involved in environmental issues, in science and technology (chemistry, biology, ecology, IT, mathematics, statistics, geography...) and in human sciences (sociology, law, economics, philosophy...). Part of the programme is intended to address environmental issues through various disciplines (economics, law, politics, toxicology, science and technology). Finally, part of the programme is designed to develop the ability to approach environmental issues across disciplines, integrating their respective contributions (multidisciplinary approach) and to identify and negotiate consensual solutions with the different stakeholders.

Upon completion of the programme, the Master of Environmental Sciences and Management will be able to take a mediating role, alone or within a team, to resolve environmental issues: to gain an understanding of the problem and to analyse it as a whole, to summarise the positions of the various stakeholders, including experts, to communicate these comprehensibly to all parties, to develop and propose consensual solutions, to argue and negotiate with stakeholders.

On successful completion of this programme, each student is able to :

1. To analyse the scientific, technical and non-technical dimensions of an environmental problem.

1.1 To identify the stakeholders concerned by the environmental issue: the general public, scientific experts, non-governmental organisations, public authorities, companies, etc.

1.2 To gather information, in French and English, on the various dimensions of the environmental issue: scientific, technical/ technological, human, etc.

1.3 To use basic theoretical concepts in science and technology in an appropriate manner: chemistry, biology, ecology, toxicology, IT, mathematics, statistics, geography, etc. related to the environmental issue.

1.4 To use basic theoretical concepts in the human sciences in an appropriate manner: sociology, philosophy, law, economics, etc. related to the environmental issue.

1.5 To communicate with different stakeholders and with independent experts, to identify the elements underlying their respective viewpoints and to incorporate these into the analysis.

1.6 To establish links between the basic concepts in science and technology and the humanities to explain the environmental issue as a whole.

1.7 To work with colleagues to interpret all the aspects and facets of the environmental issue.

2. To construct and develop one or more solutions to tackle the environmental issue, factoring in the technological and non-technological aspects.

2.1 To summarise different types of documents related to an environmental issue (scientific and technical / technological and humanities)

2.2 To summarise the views of stakeholders involved in the environmental issue.

2.3 To develop innovative proposals for solutions to the environmental issue with the support of stakeholders, by combining the data and scientific, technical / technological and non-technical methods available.

2.4 To select proposals for solutions in as substantiated way (self-evaluation) that best fulfil the different dimensions of the environmental issue (scientific, technical / technological and non-technical).

2.5 To identify with different stakeholders and, in relation to each of them, to decipher their views and positions with regard to the environmental issue and anticipate their reactions to new data and proposals.

2.6 To evaluate solutions against all criteria (feasibility, consistency, stakeholders, etc.) and dimensions (scientific, technical / technological and humanities).

3. To communicate the proposed environmental solutions to the stakeholders.

3.1 To present the analysis of the environmental problem and the proposed solutions verbally and in writing, in a substantiated manner using modern communication techniques.

3.2 To adapt their language and vocabulary specifically taking the cultural differences of the conversational partners into consideration: colleagues, general public, scientific experts, non-governmental organisations, public authorities, businesses, etc.

4. To negotiate a consensual solution between environmental stakeholders, based on the various solutions proposed.

4.1 To interpret the views of stakeholders on the environmental issue.

4.2 To arbitrate the views of stakeholders on the environmental solutions.

4.3 To convince stakeholders of a common solution to the environmental issue through argumentation.

4.4 To make choices, alone or within a team, taking account of all the dimensions and all the stakeholders, with a view to reaching a consensual solution.

## Programme structure

The interfaculty nature of the Master means that a significant part of the programme includes courses organized by different partner faculties.

The programme is structured as follows :

1. students from different backgrounds will follow introductory courses which will enable them to acquire a foundation in disciplines they have not studies before. Students must take all these activities to qualify for the Master degree : exemptions may be given for subjects already studied and previous results. If more than 21 credits are lacking, students will have to complete a preparatory year before they can enter the Master programme.
2. a block of compulsory group activities : 7 credits
3. a professional focus including 30 credits for compulsory activities
4. an option or a block of optional subjects : the option programme must include a minimum of 15 credits and a maximum of 30. It is possible to select a mixed programme of activities. However, it is compulsory to take at least 15 credits for activities within a single option if this option is to be mentioned in the supplement to the degree certificate. Failing this, there will be no specific reference to a particular option : the supplement will merely list the optional subjects taken.
5. a professional work placement, ideally done outside the university: 30 credits
6. a final piece of individual work (report on the professional work placement) : 15 credits
7. optional activities enabling students to supplement their programme, depending on any exemptions they may have been granted.

**To recap :**

1. Core subjects (total : min. 52 credits and max. 75 credits)
   - work placement (*) : 30 credits
   - individual final projet (*) : 15 credits
   - compulsory group activities (*) : 7 credits
   - basic activities : 21 credits maximum
   - optional activities : 15 credits
2. Professional focus (*) : 30 credits
3. Option courses or optional subjects :
   - Option course: 15 credits minimum (*) and 30 credits maximum.
   - Optional subjects : 15 credits minimum (*).

(*) Compulsory activities

Each individual programme must always be approved by the programme coordinator.

*For a programme-type, and regardless of the focus, options/or elective courses selected, this master will carry a minimum of 120 credits divided over two annual units, corresponding to 60 credits each.*

> Tronc commun *[ en-prog-2020-envi2m-tronc_commun ]*

Liste au choix de finalités ENVI2M

> Professional Focus *[ en-prog-2020-envi2m-lenvi200s ]*

> List of electives *[ en-prog-2020-envi2m-options ]*

> Option 1 : Industry and Environment *[ en-prog-2020-envi2m-lenvi201o ]*
> Option 2 : Agriculture and Environment *[ en-prog-2020-envi2m-lenvi202o ]*
> Option 3: Land Development and Environnement *[ en-prog-2020-envi2m-lenvi203o ]*
> Option 4: Public Administration and Environment *[ en-prog-2020-envi2m-lenvi204o ]*
> Optional Courses *[ en-prog-2020-envi2m-lenvi206o ]*

Preparatory Module *(only for students who qualify for the course via complementary coursework)*

> Master [120] in Environmental Science and Management *[ en-prog-2020-envi2m-module_complementaire ]*

## ENVI2M Detailled programme

## Programme by subject

## CORE COURSES

Une mise à niveau dans les différentes disciplines de base (Tronc commun) Le master ENVI est conçu pour des étudiants venant de différents horizons (sciences et technologies, sciences humaines, sciences médicales) qui n'ont pas nécessairement acquis toutes les notions de base importantes en sciences de l'environnement et du développement durable. Pour leur garantir une formation de base adéquate, le tronc commun comprend un ensemble de cours de mise à niveau dans les disciplines de base (cours de niveau bachelier). Une formation de base dans chacune de ces disciplines doit avoir été obligatoirement suivie pour obtenir le diplôme de master. Des dispenses sont accordées en fonction des cours déjà suivis par l'étudiant dans le cadre de son diplôme universitaire précédent et des résultats obtenus.

| | |
|---|---|
| O Mandatory | ⊠ Optional |
| △ Courses not taught during 2020-2021 | ⊘ Periodic courses not taught during 2020-2021 |
| ⊕ Periodic courses taught during 2020-2021 | Activity with requisites |

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

### O Activités communes obligatoires

*Pour 53 crédits minimum :*

| | | | | | | Year 1 | Year 2 |
|---|---|---|---|---|---|---|---|
| O LENVI2199 | Stage professionnel | Jean-Pascal van Ypersele de Strihou | 15h | 30 Credits | | | x |
| O LENVI2099 | Projet personnel de fin d'études | | | 15 Credits | | | x |
| O LESPO2103 | Environment and Global Economy | Thierry Bréchet | 30h | 5 Credits | q2 △ | x | |

**O Une activité au choix parmi les intitulés suivants :**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| ⊠ LBRTE2201 | Human and environmental toxicology | Cathy Debier (coord.) Philippe Hantson | 30h+7.5h | 5 Credits | q1 | x | |

### O Mandatory subjects

*Rem 1: L'étudiant(e) doit choisir un cours dans chacune des disciplines suivantes, s'il(elle) n'a pas réussi dans sa formation universitaire antérieure un cours qui aura été jugé équivalent, sachant que le total des crédits de son programme devra atteindre 120 crédits pour l'ensemble du master. Ce choix devra être soumis à l'approbation du coordinateur du programme. Rem 2: L'étudiant(e) veillera à s'assurer qu'il/elle dispose des bases nécessaires pour suivre les activités choisies.*

**⊠ Biology: one course to be chosen**

*Certaines des activités proposées pourront être suivies en partie.*

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| ⊠ LBIO1114 | Introduction to biology | Patrick Dumont Caroline Nieberding | 30h+7.5h | 3 Credits | q2 | x | x |
| ⊠ LPSP1005 | General biology, including elements of human genetics | André Moens | 30h | 4 Credits | q1 | x | x |

**⊠ Chemistry: one course to be chosen**

*Certaines des activités proposées pourront être suivies en partie.*

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| ⊠ LBIR1140 | Chimie générale 1 | Pierre Delmelle (coord.) Charles-André Fustin | 30h+30h | 6 Credits | q1 | x | x |
| ⊠ LIEPR1001 | General chemistry and biomolecules | Patrick Henriet | 30h+15h | 5 Credits | q1 | x | x |
| ⊠ LINGE1115 | Chemistry (Part 1) | Yaroslav Filinchuk | 50h+10h | 5 Credits | q1 | x | x |
| ⊠ LINGE1223 | Chemistry | Jean-François Gohy | 20h+10h | 3 Credits | q2 | x | x |
| ⊠ LMAPR2231 | Metallurgical and electrochemical processes | Joris Proost | 30h +22.5h | 5 Credits | q2 | x | x |

**⊠ Ecology: one course to be chosen**

*Le cours LBIO1351 est recommandé.*

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| ⊠ LBIO1217 | Ecology II | Thierry Hance Caroline Nieberding Hans Van Dyck Renate Wesselingh (coord.) | 30h+10h | 3 Credits | q2 | x | x |
| ⊠ LBIR1354 | Biologie des interactions | Anne-Laure Jacquemart (coord.) Anne Legrève | 22.5h +15h | 3 Credits | q2 | x | x |

**⊠ Economie: une activité au choix parmi les intitulés suivants:**

| | | | | | | Year 1 | 2 |
|---|---|---|---|---|---|---|---|
| ⛒ LBIR1260 | Principles of economics | Monica Schuster (compensates Goedele Van den Broeck) | 30h+15h | 3 Credits | q1 | x | x |
| ⛒ LECGE1115 | Political Economics | Rigas Oikonomou Gonzague Vannoorenberghe | 45h+15h | 5 Credits | q1 | x | x |
| ⛒ LPSP1009 | Economy: education, health and work | Barbara Cresti Barbara Cresti (compensates François Maniquet) | 30h | 3 Credits | q2 | x | x |

**⛒ Philosophy: one course to be chosen**
*LSC1120 is recommanded.*

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| ⛒ LCOPS1124 | Philosophy | Sylvain Camilleri Nathalie Frogneux | 30h | 5 Credits | q2 | x | x |
| ⛒ LFILO1310 | Philosophy of Nature | Jean-Michel Counet | 30h | 3 Credits | q1 | x | x |
| ⛒ LSC2220 | Philosophy of science | Peter Verdée (compensates Alexandre Guay) | 30h | 2 Credits | q2 | x | x |
| ⛒ LSC1120 | Philosophy, ethology and ethics | Charles Pence (compensates Alexandre Guay) | 45h | 2 Credits | q1 | x | x |

**⛒ Sociology: one course to be chosen**
*Le cours LPSP1007 est recommandé.*

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| ⛒ LPOLS1121 | Sociologie du comportement politique | Benoît Rihoux | 22.5h | 4 Credits | q2 | x | x |
| ⛒ LPSP1007 | Sociology: education, health and work | Marc Zune | 30h | 3 Credits | q1 | x | x |
| ⛒ LDROI1221 | Introduction to Sociology | Eric Mangez Benoît Rihoux | 45h | 3 Credits | q1 | x | x |

**⛒ Geography: one course to be chosen**
*L'étudiant peut éventuellement choisir d'autres activités de Géographie en fonction des prérequis dont il dispose.*

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| ⛒ LGEO1221 | Elements of human geography | Marie-Laurence De Keersmaecker | 30h+30h | 5 Credits | q1 | x | x |
| ⛒ LGEO2110 | Mondialisation, développement et environnement | Eric Lambin | 30h+30h | 5 Credits | q1 | x | x |

**⛒ Applied Informatics: one course to be chosen**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| ⛒ LECGE1215 | Information Technology in Economics and Management | Manuel Kolp Marco Saerens | 30h+20h | 4 Credits | q1 | x | x |
| ⛒ LBIR1271 | Projet intégré en informatique et mathématiques appliquées | Patrick Bogaert Emmanuel Hanert (coord.) Marnik Vanclooster | 30h+30h | 5 Credits | q2 | x | x |

**⛒ Statistics and Data Analysis: one course to be chosen**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| ⛒ LBIR1212 | Probabilities and statistics (I) | Patrick Bogaert | 30h+15h | 4 Credits | q1 | x | x |
| ⛒ LMAT1271 | Calculation of probability and statistical analysis | Mickaël De Backer (compensates Rainer von Sachs) | 30h+30h | 6 Credits | q2 | x | x |
| ⛒ LMAT1375 | Biometry | Nicolas Schtickzelle | 25h+25h | 4 Credits | q2 △ | x | x |
| ⛒ LEPL1109 | Statistics and data sciences | Donatien Hainaut Laurent Jacques | 30h+30h | 5 Credits | q1 | x | x |
| ⛒ LECGE1114 | Statistics in Economics and Management I | Marie-Paule Kestemont | 30h+30h | 5 Credits | q2 | x | x |

**⛒ English: one course to be chosen**
*Le cours LANGL1882 est fortement recommandé (thèmes liés à l'environnement). Les cours suivants le sont par ordre d'intérêt décroissant. Des tests dispensatoires sont organisés au début du 1er quadrimestre.*

| | | | | | | Year 1 | 2 |
|---|---|---|---|---|---|---|---|
| ⊠ LANGL1882 | English : reading and listening comprehension of texts in Bioengineering | Ursule Coûteaux (compensates Sandrine Meirlaen) Charlotte Diaz (compensates Ariane Halleux) Amandine Dumont (compensates Anne-Julie Toubeau) Amandine Dumont Dag Houdmont (compensates Anne-Julie Toubeau) Laura Lievens (compensates Ariane Halleux) Mark Theodore Pertuit Charlotte Peters | 30h | 2 Credits | q2 | x | x |
| ⊠ LANG1861 | English: reading and listening comprehension of scientific texts | Catherine Avery (coord.) Fanny Desterbecq (coord.) Amandine Dumont | 10h | 2 Credits | q2 | x | x |
| ⊠ LANG1862 | English: reading and listening comprehension of scientific texts | Ahmed Adrioueche (coord.) Amandine Dumont Ariane Halleux (coord.) | 30h | 2 Credits | q1 | x | x |

## ⊠ Activités facultatives:

*Le volume de ces activités est modulable avec les activités obligatoires pour obtenir 120 crédits minimum pour l'ensemble du master. D'autres activités relevant des sciences de l'environnement peuvent également être choisies.*

### ⊠ Communication scientifique

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| ⊠ LCOMU2600 | Scientific popularisation | Philippe Verhaegen | 30h | 5 Credits | q1 | x | x |

### ⊠ Anthropologie

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| ⊠ LDVLP2320 | Anthropology of development and environment | Pierre-Joseph Laurent | 30h | 5 Credits | q1 | x | x |

### ⊠ Philosophie des sciences de la nature: une activité au choix parmi les intitulés suivants:

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| ⊠ LFILO2240 | Advanced Studies in the Philosophy of Natural Sciences A | Charles Pence | 30h | 5 Credits | q1 ⊘ | x | x |
| ⊠ LFILO2241 | Advanced Studies in the Philosophy of Natural Sciences B | Charles Pence (compensates Alexandre Guay) | 30h | 5 Credits | q1 ⊕ | x | x |
| ⊠ LFILO2003E | Ethics in the Sciences and technics (sem) | | 15h+15h | 2 Credits | q2 | x | x |

## *PROFESSIONAL FOCUS [30.0]*

Un coeur de formation interdisciplinaire, spécifique et original (Finalité spécialisée) Un ensemble de cours, dédicacés aux sciences environnementales et aux approches interdisciplinaires de gestion des problématiques environnementales et du développement durable. Ces cours sont rassemblés dans le tronc commun obligatoire et dans la finalité spécialisée. Un stage réalisé en milieu professionnel, à l'extérieur de l'université, amenant les étudiants à mettre en pratique leur formation théorique dans des situations concrètes, en s'intégrant et en apportant leur contribution à l'équipe des professionnels de l'institution d'accueil (entreprise, bureau d'étude, ONG, administration publique,...) pour résoudre les problématiques environnementales auxquelles ils sont confrontés. Un projet personnel de fin d'études, correspondant à la rédaction d'un rapport sur le stage professionnel.

| | |
|---|---|
| O Mandatory | ⊠ Optional |
| △ Courses not taught during 2020-2021 | ⊘ Periodic courses not taught during 2020-2021 |
| ⊕ Periodic courses taught during 2020-2021 | Activity with requisites |

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

### *Content:*

| | | | Year 1 | Year 2 |
|---|---|---|---|---|
| **Problématique générale de l'environnement** | | | | |
| O LENVI2010 | Public strategies for sustainable development | Marie-Paule Kestemont (coord.) Benoît Rihoux Jean-Pascal van Ypersele de Strihou | 15h 2 Credits q1 | x |
| O LENVI2002 | Seminars in environmental science and management | Denis Dochain Marie-Paule Kestemont Jean-Pascal van Ypersele de Strihou (coord.) | 15h 2 Credits q1 | x |
| O LENVI2101 | Sociétés, populations, environnement, développement: problématiques et approches interdisciplinaires | Denis Dochain Nathalie Frogneux Pierre-Joseph Laurent Jean-Pascal van Ypersele de Strihou (coord.) | 45h 6 Credits q1 | x |
| **Pollution et environnement** | | | | |
| O LENVI2012 | Environment Pollution | Yannick Agnan Patrick Gerin (coord.) Nathalie Kruyts | 45h+30h 7 Credits q2 | x |
| **Droit et environnement** | | | | |
| O LDROP2061 | Sustainable Development Law | Charles-Hubert Born | 30h 3 Credits q2 | x |
| O LDROP2063 | Sectoral Environmental Law | Valérie Dupont Damien Jans | 30h 3 Credits q2 | x |
| **Gestion de l'environnement** | | | | |
| O LENVI2011 | Méthodes d'évaluation et de gestion environnementale | Jean-Pierre Tack | 30h 3 Credits q2 | x |
| **Formation à la communication** | | | | |
| O LENVI2004 | Atelier en communication environnementale et en gestion des conflits par la négociation | Jean-Pascal van Ypersele de Strihou | 20h 4 Credits q1 | x |

## OPTIONS

Une option et/ou un ensemble de cours au choix (Options)

L'étudiant dispose d'une grande liberté pour compléter le coeur de sa formation (voir TC et FS) par le choix des cours qui l'intéressent dans un ensemble de cours facultatifs du tronc commun et de cours proposés au sein de différentes options. Il est possible de panacher un programme de cours parmi ces options. Il est cependant nécessaire de prendre au moins 15 crédits d'activités dans une seule et même option pour que celle-ci figure dans le supplément au diplôme. Dans le cas contraire, aucune référence à une option ne sera mentionnée dans le supplément au diplôme, qui indiquera simplement la liste des cours au choix qui ont été suivis.



## OPTION 1 : INDUSTRY AND ENVIRONMENT

| | |
|---|---|
| O Mandatory | ⊠ Optional |
| △ Courses not taught during 2020-2021 | ⊘ Periodic courses not taught during 2020-2021 |
| ⊕ Periodic courses taught during 2020-2021 | Activity with requisites |

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

*From 15 to 30 credits*

### O Content:

| | | | | | Year 1 | Year 2 |
|---|---|---|---|---|---|---|
| **⊠ Activités en gestion de l'environnement** | | | | | | |
| ⊠ LBIR1351 | Introduction to systems analysis | Philippe Baret | 10h+20h | 3 Credits | q1 | x |
| ⊠ LBRAI2210 | Microeconomics of Development | Frédéric Gaspart | 30h | 3 Credits | q1 | x |
| ⊠ LENVI2006 | Sociologie de l'environnement | Françoise Bartiaux | 15h+15h | 3 Credits | q2 | x |
| ⊠ LINMA2510 | Mathematical ecology | Eric Deleersnijder (coord.)<br>Denis Dochain<br>Emmanuel Hanert | 30h +22.5h | 5 Credits | q2 ⊘ | x |
| **⊠ Activités en traitement et recyclage** | | | | | | |
| ⊠ LGCIV2073 | Hydrogeology and Geoenvironment | Pierre-Yves Bolly | 30h | 5 Credits | q1 | x |
| ⊠ LMAPR2647 | Sustainable treatment of industrial and domestic waste: Fundamentals | Olivier Françoisse<br>Patricia Luis Alconero<br>Olivier Noiset<br>Benoît Stenuit | 30h+15h | 5 Credits | q1 | x |
| **⊠ Activité en énergie et environnement** | | | | | | |
| ⊠ LENVI2007 | Renewable energies | Xavier Draye<br>Patrick Gerin (coord.)<br>Hervé Jeanmart<br>Geoffrey Van Moeseke | 30h | 4 Credits | q1 | x |
| **⊠ Activité en risques technologiques** | | | | | | |
| O LMECA2645 | Major technological hazards in industrial activity. | Denis Dochain | 30h | 3 Credits | q2 | x |
| **⊠ Activité en climat: état, pression et réponses** | | | | | | |
| *Le cours PHY2153 peut également être suivi en partie pour 3 crédits.* | | | | | | |
| ⊠ LPHYS2162 | Introduction to the physics of the climate system and its modelling | Hugues Goosse<br>Jean-Pascal van Ypersele de Strihou | 22.5h +22.5h | 5 Credits | q1 | x |

| | | | | | | Year 1 | 2 |
|---|---|---|---|---|---|---|---|
| ⊠ LENVI2005 | Changements climatiques: impacts et solutions | Pierre Delmelle<br>Philippe Marbaix<br>Jean-Pascal van Ypersele de Strihou (coord.) | 30h | 3 Credits | q2 | x | x |
| ⊠ LBIR1328A | Climatology and hydrology applied to agronomy and the environment - partim A | Charles Bielders<br>Hugues Goosse<br>Marnik Vanclooster | 22.5h | 2 Credits | q1 | x | x |

## OPTION 2 : AGRICULTURE AND ENVIRONMENT

| | |
|---|---|
| O Mandatory | ⊠ Optional |
| △ Courses not taught during 2020-2021 | ⊘ Periodic courses not taught during 2020-2021 |
| ⊕ Periodic courses taught during 2020-2021 | Activity with requisites |

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

*From 15 to 30 credits*

### O Content:

| | | | | | | Year 1 | Year 2 |
|---|---|---|---|---|---|---|---|
| **⊠ Activités en pollution** | | | | | | | |
| ⊠ LBIRE2105 | Water - soil - air quality's Evaluation | Henri Halen<br>Philippe Maetz<br>Xavier Rollin (coord.) | 30h+0h | 3 Credits | q1 | x | x |
| ⊠ LMAPR2647 | Sustainable treatment of industrial and domestic waste: Fundamentals | Olivier Françoisse<br>Patricia Luis Alconero<br>Olivier Noiset<br>Benoît Stenuit | 30h+15h | 5 Credits | q1 | x | x |
| **⊠ Activités en agriculture et écologie** | | | | | | | |
| ⊠ LBOE2166 | Lutte biologique | Claude Bragard<br>Thierry Hance | 12h+24h | 3 Credits | q2 | x | x |
| O LBIRA2109 | Agrarian systems and farm | Pierre Bertin | 30h+0h | 3 Credits | q1 | x | |
| ⊠ LBOE2292 | Modélisation écologique et évolutive | Renate Wesselingh | 12h+36h | 4 Credits | q1 | x | x |
| **⊠ Activités en gestion: compléments** | | | | | | | |
| ⊠ LBIR1351 | Introduction to systems analysis | Philippe Baret | 10h+20h | 3 Credits | q1 | x | x |
| ⊠ LBRAI2210 | Microeconomics of Development | Frédéric Gaspart | 30h | 3 Credits | q1 | x | x |
| ⊠ LENVI2006 | Sociologie de l'environnement | Françoise Bartiaux | 15h+15h | 3 Credits | q2 | x | x |
| **⊠ Activité en climat: état, pression et réponses**<br>*Le cours PHY2153 peut également être suivi en partie pour 3 crédits.* | | | | | | | |
| ⊠ LPHYS2162 | Introduction to the physics of the climate system and its modelling | Hugues Goosse<br>Jean-Pascal van Ypersele de Strihou | 22.5h<br>+22.5h | 5 Credits | q1 | x | x |
| ⊠ LENVI2005 | Changements climatiques: impacts et solutions | Pierre Delmelle<br>Philippe Marbaix<br>Jean-Pascal van Ypersele de Strihou (coord.) | 30h | 3 Credits | q2 | x | x |
| ⊠ LBIR1328A | Climatology and hydrology applied to agronomy and the environment - partim A | Charles Bielders<br>Hugues Goosse<br>Marnik Vanclooster | 22.5h | 2 Credits | q1 | x | x |
| **⊠ Activité en développement territorial** | | | | | | | |
| ⊠ LBRAT2103 | Sociology of the actors and the rural territories | Yves Hanin | 30h | 3 Credits | q1 | x | x |

## OPTION 3: LAND DEVELOPMENT AND ENVIRONNEMENT

| | |
|---|---|
| O Mandatory | ⊠ Optional |
| △ Courses not taught during 2020-2021 | ⊘ Periodic courses not taught during 2020-2021 |
| ⊕ Periodic courses taught during 2020-2021 | Activity with requisites |

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

*From 15 to 30 credits*

### O Content:

| | | | | | Year 1 | Year 2 |
|---|---|---|---|---|---|---|
| **⊠ Activités en sociologie du développement territorial** | | | | | | |
| ⊠ LBRAT2103 | Sociology of the actors and the rural territories | Yves Hanin | 30h | 3 Credits | q1 | x x |
| ⊠ LSPED2010 | Space, settlement and resources | Thierry Eggerickx<br>Etienne Verhaegen | 30h | 5 Credits | q2 | x x |
| **⊠ Activités en développement territorial** | | | | | | |
| ⊠ LBRAT2101 | Suburban and rural space development | Pierre Defourny (coord.)<br>Yves Hanin<br>Marie Pairon | 45h+15h | 6 Credits | q1 | x x |
| ⊠ LBOE2120 | Conservation de la biodiversité | Nicolas Schtickzelle | 36h+12h | 4 Credits | q1 | x x |
| ⊠ LBOE2292 | Modélisation écologique et évolutive | Renate Wesselingh | 12h+36h | 4 Credits | q1 | x x |
| ⊠ LURBA2915 | Planification stratégique (cours - atelier) | Marie-Laurence De Keersmaecker<br>Pierre Defourny<br>Yves Hanin<br>Michaël Van Cutsem | 60h+45h | 8 Credits | q1 | x x |
| **⊠ Activités en gestion** | | | | | | |
| ⊠ LBIRE2102 | Applied Geomatic | Pierre Defourny | 30h +22.5h | 4 Credits | q1 | x x |
| ⊠ LBRAI2210 | Microeconomics of Development | Frédéric Gaspart | 30h | 3 Credits | q1 | x x |
| ⊠ LENVI2005 | Changements climatiques: impacts et solutions | Pierre Delmelle<br>Philippe Marbaix<br>Jean-Pascal van Ypersele de Strihou (coord.) | 30h | 3 Credits | q2 | x x |
| ⊠ LENVI2006 | Sociologie de l'environnement | Françoise Bartiaux | 15h+15h | 3 Credits | q2 | x x |
| ⊠ LGEO1343 | Earth observation by satellite | Eric Lambin | 30h+30h | 5 Credits | q1 | x x |
| ⊠ LINMA2510 | Mathematical ecology | Eric Deleersnijder (coord.)<br>Denis Dochain<br>Emmanuel Hanert | 30h +22.5h | 5 Credits | q2 ⊘ | x x |

## OPTION 4: PUBLIC ADMINISTRATION AND ENVIRONMENT

| | |
|---|---|
| O Mandatory | ⊠ Optional |
| △ Courses not taught during 2020-2021 | ⊘ Periodic courses not taught during 2020-2021 |
| ⊕ Periodic courses taught during 2020-2021 | Activity with requisites |

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

*From 15 to 30 credits*

### O Content:

| | | | | | Year 1 | Year 2 |
|---|---|---|---|---|---|---|
| **⊠ Activité en énergie et environnement** | | | | | | |
| ⊠ LENVI2007 | Renewable energies | Xavier Draye<br>Patrick Gerin (coord.)<br>Hervé Jeanmart<br>Geoffrey Van Moeseke | 30h | 4 Credits | q1 | x | x |
| **⊠ Activités en stratégies publiques** | | | | | | |
| **⊠ Un cours au choix parmi les intitulés suivants:** | | | | | | |
| ⊠ LBRAT2103 | Sociology of the actors and the rural territories | Yves Hanin | 30h | 3 Credits | q1 | x | x |
| ⊠ LBRAT2101 | Suburban and rural space development | Pierre Defourny (coord.)<br>Yves Hanin<br>Marie Pairon | 45h+15h | 6 Credits | q1 | x | x |
| ⊠ LSPRI2225 | Publics policies of Sustainability in the European Union | David Aubin | 30h | 5 Credits | q2 ⊕ | x | x |
| **⊠ Un cours au choix parmi les intitulés suivants:** | | | | | | |
| ⊠ LURBA2915 | Planification stratégique (cours - atelier) | Marie-Laurence De Keersmaecker<br>Pierre Defourny<br>Yves Hanin<br>Michaël Van Cutsem | 60h+45h | 8 Credits | q1 | x | x |
| ⊠ LURBA3011 | Acteurs, territoires et contextes de développement | Roselyne De Lestrange<br>Aniss Mezoued<br>Chloé Salembier | 50h | 5 Credits | q1 | x | x |
| ⊠ LENVI2006 | Sociologie de l'environnement | Françoise Bartiaux | 15h+15h | 3 Credits | q2 | x | x |
| **⊠ Activités en traitement et recyclage** | | | | | | |
| ⊠ LGCIV2073 | Hydrogeology and Geoenvironment | Pierre-Yves Bolly | 30h | 5 Credits | q1 | x | x |
| **⊠ Activité en risques technologiques** | | | | | | |
| ⊠ LMECA2645 | Major technological hazards in industrial activity. | Denis Dochain | 30h | 3 Credits | q2 | x | x |
| ⊠ LENVI2005 | Changements climatiques: impacts et solutions | Pierre Delmelle<br>Philippe Marbaix<br>Jean-Pascal van Ypersele de Strihou (coord.) | 30h | 3 Credits | q2 | x | x |
| **⊠ Activités en santé publique et environnement** | | | | | | |
| **⊠ Activités au choix** | | | | | | |
| ⊠ LDEMO2610 | Populations and health | Bruno Masquelier<br>Bruno Masquelier (compensates Philippe Bocquier) | 30h | 5 Credits | q1 | x | x |
| ⊠ WFSP2238 | Advanced epidemiology | Niko Speybroeck | 20h+20h | 5 Credits | q2 | x | x |

## OPTIONAL COURSES

| | |
|---|---|
| O Mandatory | ⊠ Optional |
| △ Courses not taught during 2020-2021 | ⊘ Periodic courses not taught during 2020-2021 |
| ⊕ Periodic courses taught during 2020-2021 | Activity with requisites |

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

*From 15 to 30 credits*

| | | | | | | Year 1 | Year 2 |
|---|---|---|---|---|---|---|---|
| **O *Content:*** | | | | | | | |
| **⊠ Activité d'enrichissement personnel**<br>*Les étudiants peuvent effectuer un stage supplémentaire. Ce stage fait partie intégrante du programme et ne fera l'objet ni de crédits ni d'évaluation. Cette activité est couverte par l'assurance de l'université.* | | | | | | | |
| ⊠ LBIR2001 | Masters Internship | | | | | x | x |

## 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 competences expected of every graduate on completion of the programme. You can see the contribution of each teaching unit to the programme's reference framework of learning outcomes in the document *"In which teaching units are the competences and learning outcomes in the programme's reference framework developed and mastered by the student?"*

# ENVI2M - Information

## Access Requirements

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

*Decree of 7 November 2013 defining the landscape of higher education and the academic organization of studies.*

*The admission requirements must be met prior to enrolment in the University.*

SUMMARY



### Specific access requirements

L'étudiant doit avoir obtenu au moins 70% des points ou une mention équivalente lors de l'obtention du diplôme qui lui permet d'accéder au master. En outre, son dossier de candidature sera soumis à l'approbation de la commission de gestion du programme.

### University Bachelors

| Diploma | Special Requirements | Access | Remarks |
|---|---|---|---|
| **UCLouvain Bachelors** | | | |
| Titre inconnu:lchim1ba | | Access based on application | |
| **Others Bachelors of the French speaking Community of Belgium** | | | |
| #prog:intitulé:Lmath1ba# | | Access based on application | |
| **Bachelors of the Dutch speaking Community of Belgium** | | | |
| | | Access based on application | |
| **Foreign Bachelors** | | | |
| | | Access based on application | |

### Non university Bachelors

> Find out more about links (https://uclouvain.be/fr/etudier/passerelles) to the university

### Holders of a 2nd cycle University degree

| Diploma | Special Requirements | Access | Remarks |
|---|---|---|---|
| **"Licenciés"** | | | |
| | | Direct access | |
| **Masters** | | | |
| | | Direct access | En principe, les masters de tous les domaines.<br><br>Vu le caractère interdisciplinaire de ce master qui par ailleurs, est très largement accessible aux détenteurs d'un grade de master de tous les domaines, une partie du programme consiste en une liste de cours |

de base proposés au choix. En fonction du grade de master dont il est porteur et des éventuelles dispenses qui pourront lui être octroyées, l'étudiant inscrira à son programme 0 à 21 crédits de cours repris dans cette liste. Ces cours feront bien sûr partie intégrante de son programme.

## Holders of a non-University 2nd cycle degree

## Access based on validation of professional experience

> See the website Valorisation des acquis de l'expérience

It is possible to gain admission to all masters courses via the validation of professional experience procedure.

## Access based on application

Reminder : all Masters (apart from Advanced Masters) are also accessible on file.

## Admission and Enrolment Procedures for general registration

L'étudiant doit avoir obtenu au moins 70% des points ou une mention équivalente lors de l'obtention du diplôme qui lui permet d'accéder au master. En outre, son dossier de candidature sera soumis à l'approbation de la commission de gestion du programme.

# Supplementary classes

***To access this Master, students must have a good command of certain subjects. If this is not the case, they must add supplementary classes at the beginning of their Master's programme in order to obtain the prerequisites for these studies.***

| | |
|---|---|
| O Mandatory | ⊠ Optional |
| △ Courses not taught during 2020-2021 | ⊘ Periodic courses not taught during 2020-2021 |
| ⊕ Periodic courses taught during 2020-2021 | Activity with requisites |

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

## O Supplementary classes

*Maximum 60 credits*

## Teaching method

The programme for the Master in Science and Environmental Management includes a group of courses which are designed to provide students with basic knowledge of the different disciplines involved in the management of environmental problems and sustainable development. A significant proportion of the courses are organized by different partner faculties. In this way, courses are given by specialists from each discipline.

The training programme particularly focuses on encouraging students to use their knowledge and skills, through different kinds of individual and group work and also through a large-scale exercise (ENVI 2101, 9 credits) in which students gather evidence about the many different aspects of a real environmental problem they are faced with: they have to become negotiators of technical, soci-economic and institutional solutions between all the involved parties.

Finally, the professional work placement provides a break from academic training, allowing students to put their knowledge and skills into practice to find solutions to real environmental issues.

## Evaluation

***The evaluation methods comply with the regulations concerning studies and exams (https://uclouvain.be/fr/decouvrir/rgee.html). More detailed explanation of the modalities specific to each learning unit are available on their description sheets under the heading "Learning outcomes evaluation method".***

Examinations for each activity. The precise form is outlined, where necessary, in the relevant course specification.

## Mobility and/or Internationalisation outlook

There is an active exchange agreement with the University of Sherbrooke (Quebec, Canada).

The programme has traditionally welcomed international students.

## Possible trainings at the end of the programme

Although it is open to certain bachelors, the Master in Environmental Science and Management should ideally follow a first Master in human sciences, exact sciences or applied sciences. Its stongly interdisciplinary nature will provide second cycle students who wish to have a professional career in environment with useful additional knowledge in the areas of science and integrated management of environmental issues.

Doctoral programmes : this Master does not specifically lead to a doctorate.

## Contacts

Toute information complémentaire à propos de ce master est à adresser au coordinateur du programme, Prof. P. Gerin, Croix du Sud 2, L7.05.19, 1348 Louvain-la-Neuve, coordenvi@climate.be.

### Curriculum Management

Faculty

| | |
|---|---|
| Structure entity | SST/AGRO |
| Denomination | Faculty of bioscience engineering (AGRO) |
| Sector | Sciences and Technology (SST) |
| Acronym | AGRO |
| Postal address | Croix du Sud 2 - bte L7.05.01<br>1348 Louvain-la-Neuve<br>Tel: +32 (0) 10 47 37 19 - Fax: +32 (0) 10 47 47 45 |
| Website | http://www.uclouvain.be/agro |

Mandate(s)

- Dean : Philippe Baret
- Administrative director : Christine Denayer

Commission(s) of programme

- Commission de programme interfacultaire en Sciences et gestion de l'environnement (ENVI)

Academic supervisor: Patrick Gerin

Jury

- Charles Bielders

Useful Contact(s)

- Patrick Gerin