# ENVI2M

*2014 - 2015*

# 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**
Organized by: **Faculté des bioingénieurs (AGRO)**
Programme code: **envi2m** - European Qualifications Framework (EQF): 7

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## 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.

*Whatever the focus or the options chosen, the programme of this master shall totalize 120 credits, spread over two years of studies each of 60 credits.*

> Tronc commun *[ en-prog-2014-envi2m-lenvi220t.html ]*

> Professional focus *[ en-prog-2014-envi2m-lenvi200s ]*

Options courses

> Option 1 : Industry and Environment *[ en-prog-2014-envi2m-lenvi201o.html ]*
> Option 2 : Agriculture and Environment *[ en-prog-2014-envi2m-lenvi202o.html ]*
> Option 3: Land Development and Environnement *[ en-prog-2014-envi2m-lenvi203o.html ]*
> Option 4: Public Administration and Environment *[ en-prog-2014-envi2m-lenvi204o.html ]*
> Optional Courses *[ en-prog-2014-envi2m-lenvi206o.html ]*

## 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 2014-2015 | ⊘ Periodic courses not taught during 2014-2015 |
| ⊕ Periodic courses taught during 2014-2015 | ⧺ Two years course |

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 | N. | | 15 Credits | | | x |
| O LESPO2103 | Environment and Global Economy | Thierry Bréchet | 30h | 5 Credits | | x | |

#### O Un cours au choix parmi les intitulés suivants :

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| ⊠ WESP2230 | Santé et environnement: risques chimiques | Perrine Hoet | 15h+7.5h | 3 Credits | 2q | x | |
| ⊠ LBRTE2201 | Human and environmental toxicology | Alfred Bernard, Cathy Debier (coord.) | 45h+7.5h | 5 Credits | 1q | x | |
| ⊠ LBRTE2201A | Toxicologie humaine | Alfred Bernard, Cathy Debier | 30h | 3 Credits | 1q | 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: Les étudiants veilleront à s'assurer qu'ils/elles disposent des bases nécessaires pour suivre les cours choisis.*

#### ⊠ 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 | 2q | x | x |
| ⊠ LPSP1005 | Biologie générale, y compris éléments de génétique humaine | André Moens | 30h | 4 Credits | 1q | x | x |

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

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

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| ⊠ LIEPR1001 | General chemistry and biomolecules | Patrick Henriet | 30h+15h | 5 Credits | 1q | x | x |
| ⊠ LCHM1111 | General chemistry 1 | Michel Devillers (coord.), Bernard Tinant | 60h+60h | 10 Credits | 1q | x | x |
| ⊠ LINGE1115 | Chemistry (Part 1) | Bernard Tinant | 50h+10h | 5 Credits | 1q | x | x |
| ⊠ LINGE1223 | Chemistry | Agnès Gnagnarella, Bernard Tinant | 20h+10h | 3 Credits | 2q | x | x |
| ⊠ LFSAB1301 | Chemistry and Physical Chemistry 1 | Sophie Demoustier, Alain Jonas, Bernard Nysten | 30h+30h | 6 Credits | 2q | x | x |

| | | | | | | Year 1 | Year 2 |
|---|---|---|---|---|---|---|---|
| ⊠ LMAPR1231 | Process in inorganic chemistry | Pascal Jacques, Joris Proost | 30h+30h | 5 Credits | 2q | x | x |

## ⊠ Ecology: one course to be chosen

*Le cours LBIO1351 est recommandé.*

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| ⊠ LBIO1351 | Ecology of individuals and populations | Thierry Hance, Anne-Laure Jacquemart, Caroline Nieberding | 50h | 4 Credits | 1q | x | x |
| ⊠ LBIO1251B | Introductory ecology | Hans Van Dyck, Renate Wesselingh | 30h | 3 Credits | 2q | x | x |
| ⊠ LBIR1326 | Ecologie, physiologie et systématiques végétales | Cathy Debier, Anne-Laure Jacquemart (coord.), Isabelle Lefèvre (compensates Stanley Lutts), Stanley Lutts | 45h+15h | 4 Credits | 1 + 2q | x | x |
| ⊠ LBIR1326A | Ecologie, physiologie et systématiques végétales: Partim A (Ecologie animale et végétale) | Cathy Debier, Anne-Laure Jacquemart | 22.5h +7.5h | 2 Credits | 1q | x | x |

## ⊠ Economie: un cours au choix parmi les intitulés suivants:

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| ⊠ LBIR1242 | Principes d'Economie | Bruno Henry de Frahan | 30h+15h | 3 Credits | 1q | x | x |
| ⊠ LECGE1115 | Political Economics | Paul Belleflamme, Pierre Dehez, Jean Hindriks, Mélanie Lefèvre (compensates Paul Belleflamme), Rigas Oikonomou | 45h+15h | 5 Credits | 1q | x | x |
| ⊠ LPSP1009 | Economie : éducation, santé et travail | Barbara Cresti | 30h | 3 Credits | 2q | x | x |

## ⊠ Philosophy: one course to be chosen

*LSC1120 is recommanded.*

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| ⊠ LCOPS1124 | Philosophy | Nathalie Frogneux, Danielle Lories, Stéphane Mercier (compensates Danielle Lories), Christophe Perrin | 30h | 5 Credits | 1 ou 2q | x | x |
| ⊠ LFILO1210 | Philosophy of Nature | Alexandre Guay | 30h | 3 Credits | 1q | x | x |
| ⊠ LSC2220 | Philosophy of science | Alexandre Guay | 30h | 2 Credits | 2q | x | x |
| ⊠ LSC1120 | Philosophy | Bernard Feltz | 30h | 2 Credits | 1q | x | x |

## ⊠ Sociology: one course to be chosen

*Le cours LPSP1007 est recommandé.*

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| ⊠ LPOLS1121 | Political Sociology | Benoît Rihoux | 30h | 4 Credits | 2q | x | x |
| ⊠ LPSP1007 | Sociologie : éducation, santé et travail | Marc Zune | 30h | 3 Credits | 1q | x | x |
| ⊠ LDROI1221 | Introduction to Sociology | Pierre Baudewyns, Eric Mangez | 45h | 3 Credits | 1q | x | x |

## ⊠ Geography: one course to be chosen

*L'étudiant peut éventuellement choisir d'autres cours de Géographie en fonction des prérequis dont il dispose.*

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| ⊠ LGEO1221 | Elements of human geography | Marie-Laurence De Keersmaecker | 30h+42h | 5 Credits | 1q | x | x |
| ⊠ LGEO2110 | Mondialisation, développement et environnement | Eric Lambin | 30h+30h | 5 Credits | 1q | x | x |

## ⊠ Applied Informatics: one course to be chosen

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| ⊠ LBIR1204 | Informatique et mathématiques appliquées | Patrick Bogaert, Emmanuel Hanert (coord.), Marnik Vanclooster | 22.5h +22.5h | 4 Credits | 2q | x | x |

| | | | | | | Year 1 | 2 |
|---|---|---|---|---|---|---|---|
| ⊠ LECGE1215 | Information Technology in Economics and Management | Manuel Kolp | 30h+20h | 4 Credits | 1q | x | x |

## ⊠ Statistics and Data Analysis: one course to be chosen

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| ⊠ LBIR1203 | Probabilities and statistics (I) | Patrick Bogaert | 30h+15h | 4 Credits | 1q | x | x |
| ⊠ LFSAB1105 | Probability and statistics | Anouar El Ghouch, Rainer von Sachs | 30h+30h | 4 Credits | 1q | x | x |
| ⊠ LMAT1271 | Calculation of probability and statistical analysis | Catherine Timmermans (compensates Rainer von Sachs), Rainer von Sachs | 30h+30h | 6 Credits | 2q | x | x |
| ⊠ LMAT1375 | Biometry | Nicolas Schtickzelle | 25h+25h | 4 Credits | 2q | x | x |
| ⊠ LECGE1114 | Statistics in Economics and Management I | Marie-Paule Kestemont | 30h+30h | 5 Credits | 2q | 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.*

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| ⊠ LANGL1882 | English : reading and listening comprehension of texts in Bioengineering | Isabelle Druant, Sandrine Meirlaen (compensates Isabelle Druant), Annick Sonck (coord.), Anne-Julie Toubeau (compensates Isabelle Druant) | 30h | 2 Credits | 1q | x | x |
| ⊠ LANG1861 | English: reading and listening comprehension of scientific texts | Ahmed Adrioueche, Catherine Avery (compensates Charlotte Peters), Fanny Desterbecq, Charlotte Peters (coord.), Annick Sonck | 10h | 2 Credits | 2q | x | x |
| ⊠ LANG1862 | English: reading and listening comprehension of scientific texts | Ahmed Adrioueche (coord.), Isabelle Druant, Sandrine Meirlaen (compensates Isabelle Druant), Annick Sonck, Anne-Julie Toubeau (compensates Isabelle Druant) | 30h | 2 Credits | 1q | x | x |

## ⊠ *Activités facultatives:*

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

## ⊠ Communication scientifique: un cours au choix parmi les intitulés suivants:

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| ⊠ LBRTI2203 | Communication scientifique dans le domaine des sciences exactes | Pascale Gualtieri (coord.), Joël Saucin | 30h | 3 Credits | 1q | x | x |
| ⊠ LCOMU2600 | Scientific popularisation | Philippe Verhaegen | 30h | 5 Credits | 1q | x | x |

## ⊠ Anthropologie

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| ⊠ LDVLP2320 | Anthropology of development and environment | Pierre-Joseph Laurent | 30h | 5 Credits | 1q | x | x |

## ⊠ Philosophie des sciences de la nature: un cours au choix parmi les intitulés suivants:

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| ⊠ LFILO2240 | Advanced Studies in the Philosophy of Natural Sciences A | Bernard Feltz | 30h | 5 Credits | 2q ⊘ | x | x |
| ⊠ LFILO2241 | Advanced Studies in the Philosophy of Natural Sciences B | Alexandre Guay | 30h | 5 Credits | 2q ⊕ | x | x |
| ⊠ LFILO2003E | Ethics in the Sciences and technics (sem) | N. | | 2 Credits | | 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 2014-2015 | ⊘ Periodic courses not taught during 2014-2015 |
| ⊕ Periodic courses taught during 2014-2015 | ⧺ Two years course |

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

### Problématique générale de l'environnement

| | | | | | | Year 1 | Year 2 |
|---|---|---|---|---|---|---|---|
| O LENVI2010 | Public strategies for sustainable development | Marie-Paule Kestemont (coord.), Benoît Rihoux, Jean-Pascal van Ypersele de Strihou | 15h | 2 Credits | 1q | x | |
| O LENVI2002 | Seminars in environmental science and management | Denis Dochain, Marie-Paule Kestemont, Daniel Tyteca (coord.), Jean-Pascal van Ypersele de Strihou | 15h | 2 Credits | 1q | x | |
| O LENVI2101 | Sociétés, populations, environnement, développement: problématiques et approches interdisciplinaires | Denis Dochain (compensates Jean-Pascal van Ypersele de Strihou), Denis Dochain, Bernard Feltz (compensates Jean-Pascal van Ypersele de Strihou), Bernard Feltz, Pierre-Joseph Laurent (compensates Jean-Pascal van Ypersele de Strihou), Pierre-Joseph Laurent, Jean-Pascal van Ypersele de Strihou | 45h | 6 Credits | 1q | x | |

### Pollution et environnement

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| O LENVI2012 | Environment Pollution | Mohamed Ayadim, Bruno Delvaux, Patrick Gerin (coord.), Nathalie Kruyts (compensates Bruno Delvaux) | 45h+30h | 7 Credits | 2q | x | |

### Droit et environnement

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| O LDROP2061 | Sustainable Development Law | Francis Haumont | 30h | 3 Credits | 2q | x | |
| O LDROP2063 | Environmental Law | Nicolas de Sadeleer, Damien Jans | 30h | 3 Credits | 2q | x | |

### Gestion de l'environnement

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| O LENVI2011 | Méthodes d'évaluation et de gestion environnementale | Jean-Pierre Tack | 30h | 3 Credits | 2q | x | |

Year
1 2

## Formation à la communication

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| LENVI2004 | Atelier en communication environnementale et en gestion des conflits par la négociation | Jean-Pascal van Ypersele de Strihou | 20h | 4 Credits | 1q | 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.

*Pour être validée et donc figurer dans le supplément au diplôme, une option doit comporter 15 crédits minimum et 30 crédits maximum. Il est possible de panacher un programme d'activités au sein de ces options mais il est obligatoire de prendre au moins 15 crédits dans une seule et même option.*



## OPTION 1 : INDUSTRY AND ENVIRONMENT

| | |
|---|---|
| O Mandatory | ⊠ Optional |
| △ Courses not taught during 2014-2015 | ⊘ Periodic courses not taught during 2014-2015 |
| ⊕ Periodic courses taught during 2014-2015 | ‡ Two years course |

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

*De 15 à 30 credits parmi*

### ⊠ Activités en gestion de l'environnement

| | | | | | Year 1 | Year 2 |
|---|---|---|---|---|---|---|
| ⊠ LBIR1305 | Introduction to systems analysis | Mohamed Walid Ben Youssef Sadok | 10h+20h | 3 Credits | 1q | x | x |
| ⊠ LBRAI2210 | Microeconomics of Development | Frédéric Gaspart | 30h | 3 Credits | 1q | x | x |
| ⊠ LENVI2006 | Sociologie de l'environnement | Françoise Bartiaux | 15h+15h | 3 Credits | 2q | x | x |
| ⊠ LMAPR2510 | Mathematical ecology | Eric Deleersnijder, Emmanuel Hanert, Thierry Van Effelterre | 30h +22.5h | 5 Credits | 2q | x | x |

### ⊠ Activités en traitement et recyclage

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| ⊠ LAUCE2191 | Hydrogeology and Geoenvironment | Pierre-Yves Bolly, Alain Holeyman | 40h+10h | 5 Credits | 2q | x | x |
| ⊠ LMAPR2647 | Sustainable treatment of industrial and domestic waste: Fundamentals | Jacques Devaux, Olivier Françoisse, Patricia Luis Alconero, Olivier Noiset | 30h+15h | 5 Credits | 1q | x | x |
| ⊠ LMAPR2648 | Sustainable treatment of industrial and domestic waste: Case studies | Spyridon Agathos, Damien Debecker, Olivier Françoisse, Patricia Luis Alconero, Olivier Noiset | 30h+15h | 5 Credits | 1q | x | x |
| ⊠ LMAPR2690 | Valorisation and Treatment of Solid Wastes | N. | 22.5h | 2 Credits | 1q △ | x | x |

### ⊠ Activité en énergie et environnement

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| ⊠ LENVI2007 | Renewable energies | Xavier Draye, Patrick Gerin (coord.), Hervé Jeanmart, Geoffrey Van Moeseke | 30h | 4 Credits | 1q | x | x |

## Activité en risques technologiques

| | | | | | | Year 1 | Year 2 |
|---|---|---|---|---|---|---|---|
| LMECA2645 | Major technological hazards in industrial activity. | Denis Dochain, Alexis Dutrieux | 30h | 3 Credits | 2q | x | x |

## Activité en climat: état, pression et réponses

*Le cours PHY2153 peut également être suivi en partie pour 3 crédits.*

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| LPHY2153 | Introduction à la physique du système climatique et à sa modélisation | Hugues Goosse (compensates Jean-Pascal van Ypersele de Strihou), Hugues Goosse, Jean-Pascal van Ypersele de Strihou | 30h+15h | 5 Credits | 1q | x | x |
| LENVI2005 | Changements climatiques: impacts et solutions | Philippe Marbaix, Jean-Pascal van Ypersele de Strihou | 30h | 3 Credits | 2q | x | x |
| LBIR1338 | Bioclimatologie | Thierry Fichefet (coord.), Hugues Goosse | 22.5h +7.5h | 3 Credits | 1q | x | x |

## OPTION 2 : AGRICULTURE AND ENVIRONMENT

| | |
|---|---|
| O Mandatory | ⊠ Optional |
| △ Courses not taught during 2014-2015 | ⊘ Periodic courses not taught during 2014-2015 |
| ⊕ Periodic courses taught during 2014-2015 | ⧺ Two years course |

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

*De 15 à 30 credits parmi*

### ⊠ Activités en pollution

| | | | | | | Year 1 | Year 2 |
|---|---|---|---|---|---|---|---|
| ⊠ LBIRE2105 | Water and soil quality | Henri Halen, Xavier Rollin (coord.) | 30h+7.5h | 3 Credits | 2q | x | x |
| ⊠ LMAPR2647 | Sustainable treatment of industrial and domestic waste: Fundamentals | Jacques Devaux, Olivier Françoisse, Patricia Luis Alconero, Olivier Noiset | 30h+15h | 5 Credits | 1q | x | x |

### ⊠ Activités en agriculture et écologie

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| ⊠ LBOE2166 | Lutte biologique | Claude Bragard, Thierry Hance | 12h+24h | 3 Credits | 2q | x | x |
| ⊠ LBIRA2109A | Agrarian systems and farm : partim | Pierre Bertin | 22.5h +7.5h | 3 Credits | 1q | x | x |
| ⊠ LBOE2292 | Modélisation écologique et évolutive | Renate Wesselingh | 12h+36h | 4 Credits | 1q | x | x |

### ⊠ Activités en gestion: compléments

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| ⊠ LBIR1305 | Introduction to systems analysis | Mohamed Walid Ben Youssef Sadok | 10h+20h | 3 Credits | 1q | x | x |
| ⊠ LBRAI2210 | Microeconomics of Development | Frédéric Gaspart | 30h | 3 Credits | 1q | x | x |
| ⊠ LENVI2006 | Sociologie de l'environnement | Françoise Bartiaux | 15h+15h | 3 Credits | 2q | x | x |

### ⊠ Activité en climat: état, pression et réponses

*Le cours PHY2153 peut également être suivi en partie pour 3 crédits.*

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| ⊠ LPHY2153 | Introduction à la physique du système climatique et à sa modélisation | Hugues Goosse (compensates Jean-Pascal van Ypersele de Strihou), Hugues Goosse, Jean-Pascal van Ypersele de Strihou | 30h+15h | 5 Credits | 1q | x | x |
| ⊠ LENVI2005 | Changements climatiques: impacts et solutions | Philippe Marbaix, Jean-Pascal van Ypersele de Strihou | 30h | 3 Credits | 2q | x | x |
| ⊠ LBIR1338 | Bioclimatologie | Thierry Fichefet (coord.), Hugues Goosse | 22.5h +7.5h | 3 Credits | 1q | x | x |

### ⊠ Activité en développement territorial

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| ⊠ LBRAT2103 | Rural sociology and land development | Daniel Bodson | 30h | 3 Credits | 1q | x | x |

## OPTION 3: LAND DEVELOPMENT AND ENVIRONNEMENT

O Mandatory
⊠ Optional
△ Courses not taught during 2014-2015
⊘ Periodic courses not taught during 2014-2015
⊕ Periodic courses taught during 2014-2015
⧺ Two years course

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

*De 15 à 30 credits parmi*

### ⊠ Activités en sociologie du développement territorial

| | | | | | | Year 1 | Year 2 |
|---|---|---|---|---|---|---|---|
| ⊠ LBRAT2103 | Rural sociology and land development | Daniel Bodson | 30h | 3 Credits | 1q | x | x |
| ⊠ LSPED2010 | Space, settlement and resources | Thierry Eggerickx, Etienne Verhaegen | 30h | 5 Credits | 2q | x | x |

### ⊠ Activités en développement territorial

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| ⊠ LBRAT2101 | Suburban and rural space development | Pierre Defourny (coord.), Xavier Delmon (compensates Pierre Defourny), Yves Hanin, Bertrand Ippersiel (compensates Pierre Defourny), Anne-Laure Jacquemart | 45h +22.5h | 6 Credits | 1q | x | x |
| ⊠ LBOE2120 | Conservation de la biodiversité | Nicolas Schtickzelle, Hans Van Dyck | 36h+12h | 4 Credits | 1q | x | x |
| ⊠ LBOE2292 | Modélisation écologique et évolutive | Renate Wesselingh | 12h+36h | 4 Credits | 1q | x | x |
| ⊠ LAUCE2915 | Planification stratégique (cours - atelier) | Marie-Laurence De Keersmaecker, Pierre Defourny, Yves Hanin (coord.) | 60h+45h | 8 Credits | 1q | x | x |

### ⊠ Activités en gestion

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| ⊠ LBIRE2102 | Applied Geomatic | Pierre Defourny | 30h +22.5h | 4 Credits | 1q | x | x |
| ⊠ LBRAI2210 | Microeconomics of Development | Frédéric Gaspart | 30h | 3 Credits | 1q | x | x |
| ⊠ LENVI2005 | Changements climatiques: impacts et solutions | Philippe Marbaix, Jean-Pascal van Ypersele de Strihou | 30h | 3 Credits | 2q | x | x |
| ⊠ LENVI2006 | Sociologie de l'environnement | Françoise Bartiaux | 15h+15h | 3 Credits | 2q | x | x |
| ⊠ LGEO1343 | Remote sensing | Eric Lambin | 30h+30h | 5 Credits | 1q | x | x |
| ⊠ LMAPR2510 | Mathematical ecology | Eric Deleersnijder, Emmanuel Hanert, Thierry Van Effelterre | 30h +22.5h | 5 Credits | 2q | x | x |

## OPTION 4: PUBLIC ADMINISTRATION AND ENVIRONMENT

O Mandatory
⊠ Optional
△ Courses not taught during 2014-2015
⊘ Periodic courses not taught during 2014-2015
⊕ Periodic courses taught during 2014-2015
⧺ Two years course

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

*De 15 à 30 credits parmi*

### ⊠ Activité en énergie et environnement

| | | | | | | Year 1 | Year 2 |
|---|---|---|---|---|---|---|---|
| ⊠ LENVI2007 | Renewable energies | Xavier Draye, Patrick Gerin (coord.), Hervé Jeanmart, Geoffrey Van Moeseke | 30h | 4 Credits | 1q | x | x |

### ⊠ Activités en stratégies publiques

#### ⊠ Un cours au choix parmi les intitulés suivants:

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| ⊠ LBRAT2103 | Rural sociology and land development | Daniel Bodson | 30h | 3 Credits | 1q | x | x |
| ⊠ LBRAT2101 | Suburban and rural space development | Pierre Defourny (coord.), Xavier Delmon (compensates Pierre Defourny), Yves Hanin, Bertrand Ippersiel (compensates Pierre Defourny), Anne-Laure Jacquemart | 45h +22.5h | 6 Credits | 1q | x | x |
| ⊠ LSPRI2225 | Publics policies of Sustainability in the European Union | David Aubin | 30h | 5 Credits | 2q | x | x |

#### ⊠ Un cours au choix parmi les intitulés suivants:

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| ⊠ LAUCE2915 | Planification stratégique (cours - atelier) | Marie-Laurence De Keersmaecker, Pierre Defourny, Yves Hanin (coord.) | 60h+45h | 8 Credits | 1q | x | x |
| ⊠ LAUCE3011 | Acteurs, territoires et contextes de développement | Bernard Declève (coord.), Yves Hanin | 50h | 5 Credits | 1q | x | x |
| ⊠ LENVI2006 | Sociologie de l'environnement | Françoise Bartiaux | 15h+15h | 3 Credits | 2q | x | x |

### ⊠ Activités en traitement et recyclage

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| ⊠ LMAPR2690 | Valorisation and Treatment of Solid Wastes | N. | 22.5h | 2 Credits | 1q △ | x | x |
| ⊠ LAUCE2191 | Hydrogeology and Geoenvironment | Pierre-Yves Bolly, Alain Holeyman | 40h+10h | 5 Credits | 2q | x | x |

### ⊠ Activité en risques technologiques

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| ⊠ LMECA2645 | Major technological hazards in industrial activity. | Denis Dochain, Alexis Dutrieux | 30h | 3 Credits | 2q | x | x |
| ⊠ LENVI2005 | Changements climatiques: impacts et solutions | Philippe Marbaix, Jean-Pascal van Ypersele de Strihou | 30h | 3 Credits | 2q | x | x |

## ⊠ *Activités en santé publique et environnement*

### ⊠ Un cours au choix parmi les intitulés suivants:

| | | | | | Year 1 | Year 2 |
|---|---|---|---|---|---|---|
| ⊠ LDEMO2610 | Populations and health | Philippe Bocquier, Catherine Gourbin | 30h | 5 Credits | 2q | x | x |
| ⊠ WESP2121 | Epidemiology | Niko Speybroeck | 20h+20h | 4 Credits | 2q | x | x |
| ⊠ WESP2284 | Santé et environnement: risques psycho-sociaux | Guy Lories | 15h | 3 Credits | 2q | x | x |

## OPTIONAL COURSES

| | |
|---|---|
| O Mandatory | ⊠ Optional |
| △ Courses not taught during 2014-2015 | ⊘ Periodic courses not taught during 2014-2015 |
| ⊕ Periodic courses taught during 2014-2015 | ⧺ Two years course |

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

*De 15 à 30 credits parmi*

### ⊠ *Activité d'enrichissement personnel*

*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.*

| | | | | | | Year 1 | Year 2 |
|---|---|---|---|---|---|---|---|
| ⊠ LBIR2001 | Masters Internship | N. | | Credits | | x | x |

# ENVI2M - Information

## Admission

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

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
- Non university Bachelors
- Holders of a 2nd cycle University degree
- Holders of a non-University 2nd cycle degree
- Adults taking up their university training
- Personalized access

—

### University Bachelors

| Diploma | Special Requirements | Access | Remarks |
|---|---|---|---|
| **UCL Bachelors** | | | |
| Bachelor in Chemistry | | On the file: direct access or access with additional training | |
| Bachelor in Biology | | On the file: direct access or access with additional training | |
| Bachelor in Computer Science | | On the file: direct access or access with additional training | |
| Bachelor in Geography : General | | On the file: direct access or access with additional training | |
| Bachelor in Mathematics | | On the file: direct access or access with additional training | |
| Bachelor in Physics | | On the file: direct access or access with additional training | |
| Bachelor in Bioengineering | | On the file: direct access or access with additional training | |
| Bachelor in Engineering | | On the file: direct access or access with additional training | |
| #prog:intutle:2012-Larch1ba# | | On the file: direct access or access with additional training | |
| **Others Bachelors of the French speaking Community of Belgium** | | | |
| #prog:intitulé:2012-Lmath1ba# | | On the file: direct access or access with additional training | |
| Bachelor in Computer Science | | On the file: direct access or access with additional training | |
| Bachelor in Physics | | On the file: direct access or access with additional training | |
| Bachelor in Chemistry | | On the file: direct access or access with additional training | |
| Bachelor in Biology | | On the file: direct access or access with additional training | |
| | | On the file: direct access or access with additional training | |
| Bachelor in Bioengineering | | On the file: direct access or access with additional training | |
| Bachelor in Engineering | | On the file: direct access or access with additional training | |

| | | | |
|---|---|---|---|
| Bachelor in Engineering : Architecture | | On the file: direct access or access with additional training | |
| **Bachelors of the Dutch speaking Community of Belgium** | | | |
| | | On the file: direct access or access with additional training | |
| **Foreign Bachelors** | | | |
| | | Direct access | |

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## Non university Bachelors

| Diploma | Access | Remarks |
|---|---|---|
| > Find out more about links to the university | | |
| > BA - ingénieur commercial - type long<br>> BA en gestion de l'entreprise - type long<br>> BA en gestion publique - type long<br>> BA en sciences agronomiques - type long<br>> BA en sciences industrielles - type long | Accès au master moyennant réussite d'une année préparatoire de max. 60 crédits | Type long |
| > BA - conseiller(ère) social(e)<br>> BA - technologue de laboratoire médical<br>> BA en agronomie<br>> BA en architecture des jardins et du paysage<br>> BA en chimie (toutes finalités)<br>> BA en chimie finalité biochimie<br>> BA en commerce extérieur<br>> BA en comptabilité<br>> BA en droit<br>> BA en gestion de l'environnement urbain<br>> BA en immobilier<br>> BA en marketing<br>> BA en sciences administratives et gestion publique<br>> BA en écologie sociale<br>> BA-AESI en sciences humaines: histoire, géographie, sciences sociales<br>> BA-AESI en sciences économiques et sciences économiques appliquées<br>> BA-AESI en sciences: biologie, chimie, physique<br>> Spécialisation en analyse et traitement des eaux | Accès au master moyennant réussite d'une année préparatoire de max. 60 crédits | Type court |

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## 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.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

| Diploma | Access | Remarks |
|---|---|---|
| > Find out more about links to the university | | |
| > MA - ingénieur commercial<br>> MA architecte paysagiste<br>> MA en gestion de l'entreprise<br>> MA en gestion publique<br>> MA en sciences administratives<br>> MA en sciences agronomiques<br>> MA en sciences commerciales<br>> MA en sciences de l'ingénieur industriel (toutes finalités)<br>> MA en sciences de l'ingénieur industriel en agronomie<br>> MA en sciences industrielles, finalités chimie, biochimie et textile | Accès direct au master moyennant ajout éventuel de 15 crédits max | Type long |

## Adults taking up their university training

> 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.

## Personalized access

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

## Admission and Enrolment Procedures for general registration

Specific procedures :

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.

## 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. 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 Managment

Entite de la structure AGRO

| | | |
|---|---|---|
| Sigle | **AGRO** | |
| Dénomination | Faculté des bioingénieurs | |
| Adresse | Croix du Sud, 2 bte L7.05.01<br>1348 Louvain-la-Neuve<br>Tél 010 47 37 19 - Fax 010 47 47 45 | |
| Site web | https://www.uclouvain.be/agro | |
| Secteur | Secteur des sciences et technologies (SST) | |
| Faculté | Faculté des bioingénieurs (AGRO) | |
| Mandats | Philippe Baret | Doyen |
| | Christine Devlesaver | Directeur administratif de faculté |

| | |
|---|---|
| Commissions de programme | Commission de programme - Master Bioingénieur-Sciences agronomiques (BIRA)<br>Commission de programme - Master Bioingénieur-Chimie et bioindustries (BIRC)<br>Commission de programme - Master Bioingénieur-Sciences & technologies de l'environnement (BIRE)<br>Commission de programme - Bachelier en sciences de l'ingénieur, orientation bioingénieur (CBIR)<br>Commission de programme interfacultaire en Sciences et gestion de l'environnement (ENVI) |

**Academic Supervisor :** Patrick Gerin

## Jury

Président de jury : **Pierre Bertin**
Secrétaire de jury : **Patrick Gerin**

## Usefull Contacts

Conseiller aux études : **Patrick Gerin**