

**At Louvain-la-Neuve - 120 credits - 2 years - Day schedule - In French**Dissertation/Graduation Project : **YES** - Internship : **YES**Activities in English: **YES** - Activities in other languages : **NO**Activities on other sites : **YES**Main study domain : **Sciences**Organized by: **Faculty of Science (SC)**Programme acronym: **BOE2M** - Francophone Certification Framework: 7**Table of contents**

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## BOE2M - Introduction

### Introduction

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#### Introduction

UCLouvain and UNamur are mutually committed to setting up a joint master's degree including specialized training in various fields of organism biology and ecology, that reconciles terrestrial with aquatic environments, which were long studied separately.

#### Your profile

You

- have a bachelor's degree in life sciences and would like to specialize in the study of aquatic and terrestrial ecosystems;
- are passionate about experimental research;
- wish to engage in an environment-oriented profession and develop environmental management skills;
- intend to teach science in secondary school and wish to broaden your knowledge with additional courses in biology of organisms and ecology.

## BOE2M - Teaching profile

### Learning outcomes

In the context of the "Louvain Academy", UCLouvain (Université catholique de Louvain at Louvain-la-Neuve) and UNamur (Université de Namur at Namur) organize a joint programme, at both sites, for the Master (120 credits) in Biology of Organisms and Ecology, described below.

The aim is to train scientists who can analyse, understand and react when faced with questions or problems relating to the environment and biodiversity, both in terrestrial and aquatic ecosystems, and to the functioning of organisms function in these ecosystems. This involves advanced training, field observation, experimental research both inside and outside the laboratory, and requires the modern methods used by biologists. The Master in Biology of Organisms and Environment (BOE) comprises four option courses : biodiversity, management of ecosystems, interactions between organisms and the environment and biology of plant organisms.

The **research focus** prepares students to become researchers. Specialized courses deal with issues that are at the edge of human knowledge. There is emphasis on experimentation and academic communication, both written and oral. The programme includes a placement or training in a laboratory outside UCL, preferably abroad.

The **professional focus** enables students who wish to go on to work in industry to have the opportunity of a work placement so that they work alongside professionals and begin to gain a reputation. Students should choose courses that prepare them for working in business and environmental management.

The **teaching focus** is a specially adapted programme designed for teachers at higher levels in secondary education.

Collaboration with the ecologists from UNamur means that there is wider range of subjects for courses and dissertations since the fields of research complement each other, with terrestrial ecology and marine biology at UCLouvain and aquatic ecology in Namur).

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

1. Démontrer une maîtrise des processus biologiques régissant le fonctionnement des organismes, des populations et des écosystèmes, ainsi que leur évolution.

1.1 appliquer et intégrer les connaissances et concepts spécifiques aux domaines de l'écologie et de l'évolution des organismes, notamment :

- la diversité et l'évolution biologique
- l'écologie des populations, communautés et écosystèmes
- l'autécologie, écophysiologie et écotoxicologie

1.2 démontrer une compréhension profonde et appliquer les connaissances de base en biologie et des domaines connexes essentiels pour l'écologie et l'évolution, notamment :

- la physiologie animale et végétale
- la génétique et l'épigénétique
- la génomique et la protéomique
- les méthodes statistiques

1.3 élargir son bagage de connaissances et d'aptitudes scientifiques et techniques de manière autonome et faire preuve d'une capacité d'autoapprentissage.

2. Répondre, de manière originale, à des questions inédites en biologie environnementale en recherchant et en utilisant des sources d'information appropriées.

2.1 résumer et synthétiser les conclusions et opinions exprimées dans la littérature et les comparer entre publications,

2.2 analyser la valeur scientifique des sources et de donner un avis critique et raisonné.

3. Mettre en œuvre, de manière autonome, une démarche scientifique expérimentale afin de répondre à des questions inédites fondamentales ou appliquées en biologie environnementale

3.1 formuler une question scientifique, émettre des hypothèses, programmer et réaliser les expérimentations appropriées, analyser et interpréter les résultats, afin d'objectiver et de conclure,

3.2 élaborer un protocole expérimental (échantillonnage de terrain, plan d'observations, expériences de laboratoire), le planifier et l'exécuter afin de répondre aux objectifs définis, en utilisant des techniques et outils appropriés,

3.3 synthétiser les données obtenues et les représenter sous forme de graphiques et tableaux,

3.4 analyser les données avec les outils statistiques appropriés,

3.5 tirer des conclusions et/ou de nouvelles hypothèses basées sur les résultats obtenus,

3.6 donner un avis critique sur les hypothèses et la démarche observationnelle/expérimentale en regard des résultats,

3.7 comparer ses propres résultats avec la littérature et les confronter aux différentes théories scientifiques du domaine concerné.

4. Communiquer des connaissances scientifiques de base ou spécialisées de manière approfondie en français et en anglais (niveau B2 du [Cadre européen commun de référence pour les langues](#)).

4.1 présenter la synthèse de ses propres résultats de recherche ou de ceux découlant d'une étude bibliographique dans un rapport écrit en français et en anglais,

4.2 distinguer ses idées propres aux idées et données d'autres scientifiques en référençant son travail conformément aux standards du monde scientifique, tout en évitant le plagiat,

- 4.3 présenter oralement des informations scientifiques en utilisant les outils appropriés (poster, outils informatiques) en français et en anglais,
- 4.4 présenter et rédiger clairement des informations scientifiques en adaptant le niveau et le contenu de ses communications au public cible.
5. Travailler de manière autonome en s'intégrant dans différents types d'environnement de travail
- 5.1 initier de manière pro-active des contacts avec des personnes ayant une expertise ou une responsabilité, pour établir une relation professionnelle,
- 5.2 définir son projet de travail en concertation avec son supérieur,
- 5.3 s'intégrer dans un environnement professionnel et y interagir de façon efficace et respectueuse avec des interlocuteurs variés.
6. Travailler en équipe dans une perspective collaborative
- 6.1 participer activement à une réunion d'équipe en partageant ses idées, ses expériences et ses connaissances,
- 6.2 écouter les autres et arriver à un consensus,
- 6.3 réaliser, en équipe, des recherches ou d'autres types de projets, en répartissant les tâches et les responsabilités,
- 6.4 préparer une présentation écrite ou orale en collaboration, en combinant les informations apportées par les membres de l'équipe.
7. Assumer des responsabilités vis-à-vis de l'écosystème Terre et de la société humaine
- 7.1 évaluer et signaler les enjeux actuels et futurs des actions de l'homme pour le bien-être du monde vivant et son environnement,
- 7.2 évaluer les enjeux éthiques et sociétaux des pratiques en biologie et gestion des écosystèmes,
- 7.3 contribuer activement à résoudre des problèmes sociétaux et environnementaux,
- 7.4 énoncer des critiques constructives et de participer activement aux débats scientifiques et sociétaux.
8. S'il choisit la finalité approfondie, enrichir ses connaissances, parfaire sa formation à la démarche scientifique
- 8.1 appliquer les compétences acquises au cours du Master à un sujet de recherche original dans un environnement nouveau au sein d'une institution de recherche nationale ou internationale.
9. S'il choisit la finalité spécialisée, se confronter à l'application des connaissances acquises dans une situation de travail concrète
- 9.1 témoigner de connaissances acquises dans le domaine de gestion d'entreprise et de ressources humaines,
- 9.2 appliquer les connaissances acquises au cours du Master dans un environnement nouveau, au sein d'un institut de recherche appliquée, une association, une administration, un bureau d'études, une industrie ou une entité de gestion d'espaces naturels.
10. S'il choisit la finalité didactique, mobiliser les compétences nécessaires pour entamer efficacement le métier d'enseignant du secondaire supérieur, en biologie, et pouvoir y évoluer positivement [identique pour toute finalité didactique]
- 10.1 Intervenir en contexte scolaire, en partenariat avec différents acteurs,
- 10.2 enseigner en situations authentiques et variées,
- 10.3 exercer un regard réflexif et se projeter dans une logique de développement continu.
- Pour plus de détails, consultez l'[Agrégation de l'enseignement secondaire supérieur \(sciences biologiques\)](#).

## Programme structure

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The Master in Biology of Organisms and Ecology comprises core subjects of 50 credits, a focus of 30 credits, an option course of 22 credits and 18 credits for optional subjects.

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

## BOE2M Programme

## Detailed programme by subject

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## CORE COURSES [55.0]

- Mandatory
- ⊗ Optional
- △ Not offered in 2021-2022
- ⊙ Not offered in 2021-2022 but offered the following year
- ⊕ Offered in 2021-2022 but not the following year
- △ ⊕ Not offered in 2021-2022 or the following year
- Activity with requisites
- 🌐 Open to international students
- 🚫 Not open to international students
- [FR] Teaching language (FR, EN, ES, NL, DE, ...)

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

				Year	
				1	2
○ LBOE2111	Evolution	Caroline Nieberding Karine Van Doninck	EN [q1] [24h] [2 Credits]	X	X
○ LBOE2112	Biological data analysis	Frederik De Laender Johan Segers	FR [q1] [24h+36h] [5 Credits]	X	X
○ LBOE2113	Scientific and professional communication in English	Sandrine Meirlaen Melissa Page Anne-Julie Toubeau	FR [q2] [15h] [3 Credits]	X	
○ LBOE2191	Ecologie et société	Thierry Hance	FR [q1] [24h] [3 Credits]	X	X
○ LGEO1342A	Systèmes d'information géographique (SIG) : partim	Sophie Vanwambeke	FR [q1] [24h+24h] [4 Credits]	X	X

## ○ Sciences humaines

au moins 2 crédits obligatoires (et jusqu'à 4 crédits supplémentaires considérés comme cours au choix)

Minimum 2 credits

⊗ LFILO2003E	Ethics in the Sciences and technics (sem)	Hervé Jeanmart Charles Pence René Rezsöházy	FR [q2] [15h+15h] [2 Credits]	X	
⊗ LSC2001	Introduction to contemporary philosophy	Peter Verdée	FR [q2] [30h] [2 Credits]	X	
⊗ LSC2220	Philosophy of science	Cristian Lopez (compensates Alexandre Guay)	EN [q2] [30h] [2 Credits]	X	
⊗ ESSPS2101	Science, ethics and development		FR [q1] [22.5h+7.5h] [3 Credits]	X	X
⊗ ESPS2203	Philosophy of life science (UNamur)		FR [q1] [15h] [3 Credits]	X	X
⊗ ESBM2113	Bioethics (UNamur)		EN [q1] [20h] [2 Credits]	X	X
⊗ LTHEO2840	Science and Christian faith	Benoît Bourguine Dominique Lambert	FR [q1] [15h] [2 Credits]	X	X

## ○ mémoire

○ LBOE2196	Experimental design	Bernadette Govaerts	FR [q2] [12h+18h] [2 Credits]	X	
○ LBOE2197	Scientific research initiation		FR [q2] [] [8 Credits]	X	
○ LBOE2297	Mémoire		FR [q1] [] [22 Credits]		X

## ○ Field courses

○ ESBOE2108	Field training in aquatic ecology		FR [q2] [0h+45h] [2 Credits]	X	
○ LBOE2109	Field training in terrestrial ecology	Thierry Hance Renate Wesselingh	FR [q2] [0h+45h] [2 Credits]	X	

## LIST OF FOCUSES

- > [Research Focus](#) [ en-prog-2021-boe2m-lboe200a ]
- > [Teaching Focus](#) [ en-prog-2021-boe2m-lboe200d ]
- > [Professional Focus : Environmental Biology](#) [ en-prog-2021-boe2m-lboe200s ]

## RESEARCH FOCUS [30.0]

- Mandatory
- ⊗ Optional
- △ Not offered in 2021-2022
- ⊖ Not offered in 2021-2022 but offered the following year
- ⊕ Offered in 2021-2022 but not the following year
- △ ⊕ Not offered in 2021-2022 or the following year
- Activity with requisites
- 🌐 Open to international students
- 🚫 Not open to international students
- [FR] Teaching language (FR, EN, ES, NL, DE, ...)

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

Year

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### o Content:

○ LBOE2240	Stage de recherche		FR [q2] [] [28 Credits]		x
○ LBOE2241	Projet professionnel		FR [q2] [] [2 Credits]		x

## TEACHING FOCUS [30.0]

**IMPORTANT NOTE:** In accordance with article 138 para. 4 of the decree of 7 November 2013 concerning higher education and the academic organisation of studies, teaching practice placements will not be assessed in the September session. Students are required to make every effort to successfully complete the teaching practice in the June session, subject to having to retake the year.

- Mandatory
- ⊗ Optional
- △ Not offered in 2021-2022
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- ⊕ Offered in 2021-2022 but not the following year
- △ ⊕ Not offered in 2021-2022 or the following year
- Activity with requisites
- 🌐 Open to international students
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Year

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### o Content:

#### ⊗ Finalité didactique UCL (30 credits)

offerte sur le site UCL

#### o Module concevoir, planifier et évaluer des pratiques d'enseignement et d'apprentissage

○ LBIO2310	Stages d'enseignement en biologie (en ce compris le séminaire d'intégration des stages)	Myriam De Kesel	FR [q1+q2] [15h+40h] [7 Credits]	x	x
○ LSCI2320	Didactique et épistémologie des sciences	Myriam De Kesel Nathalie Matthys Jim Plumet	FR [q1] [60h] [6 Credits]	x	x

				Year	
				1	2
○ LBIO2340	Didactique et épistémologie de la biologie	Myriam De Kesel	FB [q2] [15h+5h] [2 Credits]	x	x
○ LAGRE2220	General didactics and education to interdisciplinarity	Stéphane Colognesi Myriam De Kesel Jean-Louis Dufays Anne Ghysseleinckx Véronique Lemaire Olivier Maes Jim Plumet Benoît Vercauteren	FB [q1 or q2] [37.5h] [3 Credits]	x	x
<b>○ Une UE parmi les quatre suivantes (2 credits)</b>					
⊗ LCHM2340	Didactique et épistémologie de la chimie	Nathalie Matthys	FB [q2] [15h+5h] [2 Credits]	x	x
⊗ LPHYS2471	Didactique et épistémologie de la physique	Jim Plumet	FB [q2] [15h+5h] [2 Credits]	x	x
⊗ LGEO2320B	Didactique et épistémologie de la géographie (en ce compris le stage d'écoute)	Marie-Laurence De Keersmaecker	FB [q1] [15h+10h] [2 Credits]	x	x
⊗ LMAT2320A	Didactique et épistémologie de la mathématique (en ce compris le stage d'écoute)	Laure Ninove	FB [q1+q2] [37.5h+10h] [4 Credits]	x	x
<b>○ Module comprendre et analyser l'institution scolaire et son contexte</b>					
○ LAGRE2400	See specifications in french	Hervé Pourtois (coord.) Pierre-Etienne Vandamme	FB [q2] [20h] [2 Credits]	x	x
<b>○ Séminaire d'observation et d'analyse de l'institution scolaire et de son contexte (en ce compris le stage d'observation) (4 credits)</b>					
<i>Choisir 1 des activités suivantes. Le cours et le séminaire doivent être suivis au même quadrimestre.</i>					
⊗ LAGRE2120P	Observation et analyse de l'institution scolaire et de son contexte (en ce compris le stage d'observation)		FB [q1] [22.5h+25h] [4 Credits]		x
⊗ LAGRE2120Q	Observation et analyse de l'institution scolaire et de son contexte (en ce compris le stage d'observation)		FB [q2] [22.5h+25h] [4 Credits]		x
<b>○ Module animer un groupe et travailler en équipe</b>					
<b>○ Comprendre l'adolescent en situation scolaire, gérer la relation interpersonnelle et animer le groupe classe (4 credits)</b>					
<i>Choisir 1 des activités suivantes. Le cours et le séminaire doivent être suivis au même quadrimestre.</i>					
⊗ LAGRE2020P	Comprendre l'adolescent en situation scolaire, Gérer la relation interpersonnelle et animer le groupe classe.	Baptiste Barbot Véronique Leroy Nathalie Roland	FB [q1] [22.5h+22.5h] [4 Credits]		x
⊗ LAGRE2020Q	Comprendre l'adolescent en situation scolaire, Gérer la relation interpersonnelle et animer le groupe classe.	Baptiste Barbot Véronique Leroy Nathalie Roland	FB [q2] [22.5h+22.5h] [4 Credits]		x
<b>⊗ Finalité didactique UNamur (30 credits)</b>					
<i>offerte sur le site UNamur</i>					
○ EFAGR2401	Education scolaire et société (UNamur)		FB [q2] [30h+10h] [4 Credits]		x
○ EFAGR2402	Psychopédagogie I		FB [q1] [30h+20h] [4 Credits]		x
○ EFAGR2406	Psychopédagogie II		FB [q2] [30h+10h] [3 Credits]		x
○ EFAGR2409	Foundation of neutrality		FB [q2] [20h] [2 Credits]		x
○ ESAGR2203	Didactique et épistémologie de la biologie I (UNamur)		FB [q1] [30h+10h] [3 Credits]		x
○ ESAGR2206	Didactique et épistémologie de la biologie II		FB [q2] [30h] [3 Credits]		x
○ ESAGR2211	Stages d'enseignement de la biologie en école secondaire (UNamur)		FB [q2] [0h+35h] [6 Credits]		x
<b>○ Enseigner une autre discipline (3 crédits) (3 credits)</b>					
⊗ ESAGR2202	Didactique et épistémologie de la physique I (UNamur)		FB [q1] [30h] [3 Credits]		x
⊗ ESAGR2204	Didactique et épistémologie de la chimie I (UNamur)		FB [q1] [30h] [3 Credits]		x
<b>○ Un cours au choix (2 credits)</b>					
⊗ EFAGR2403	Education aux nouvelles technologies de l'enseignement et de l'apprentissage (UNamur)		FB [q2] [15h] [2 Credits]		x
⊗ EFAGR2404	Analyse de pratiques		FB [q2] [8h+7h] [2 Credits]		x
⊗ EFAGR2405	Initiation aux pratiques de tutorat (UNamur)		FB [q2] [4h+11h] [2 Credits]		x
⊗ ESAGR2213	Didactical Comparison between Experimental Sciences and Mathematics		FB [q2] [15h] [2 Credits]		x

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				1	2
✘	ESSPS1202	History of science (partim)			x
✘	ECAP2003	Pédagogie des adultes (UNamur)			x
✘	ESAGR2214	Gestion et mise en place d'un laboratoire de chimie dans l'enseignement secondaire			x



**PROFESSIONAL FOCUS : ENVIRONMENTAL BIOLOGY [30.0]**

- Mandatory
- ⊗ Optional
- △ Not offered in 2021-2022
- ⊖ Not offered in 2021-2022 but offered the following year
- ⊕ Offered in 2021-2022 but not the following year
- △ ⊕ Not offered in 2021-2022 or the following year
- Activity with requisites
- 🌐 Open to international students
- 🚫 Not open to international students
- (FR) Teaching language (FR, EN, ES, NL, DE, ...)

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

Year

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**Content:**

● LBOE2260	Stage professionnel		(FR) [q2] [] [28 Credits]		x
● LBOE2261	Projet professionnel		(FR) [q2] [] [2 Credits]		x

**OPTIONS**

- > Modules [ en-prog-2021-boe2m-lboe900o ]
- > Liste des activités au choix [ en-prog-2021-boe2m-lboe219o ]
- > Formation interdisciplinaire en création d'entreprise (CPME) [ en-prog-2021-boe2m-lboe955o ]
- > Optional courses [ en-prog-2021-boe2m-lsc100o ]

**MODULES [24.0]**

- Mandatory
- ⊗ Optional
- △ Not offered in 2021-2022
- ⊖ Not offered in 2021-2022 but offered the following year
- ⊕ Offered in 2021-2022 but not the following year
- △ ⊕ Not offered in 2021-2022 or the following year
- Activity with requisites
- 🌐 Open to international students
- 🚫 Not open to international students
- (FR) Teaching language (FR, EN, ES, NL, DE, ...)

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Year

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**Content:****⊗ Ecotoxicology**

● ESBOE2163	Ecotoxicology (UNamur)		(EN) [q1] [24h+24h] [4 Credits]	x	x
● ESBOE2162	Ecotoxicology of populations, communities and ecosystems	Frederik De Laender (coord.)	(EN) [q1] [12h+12h] [2 Credits]	x	x
● ESBOE2238	Applied ecotoxicology (UNamur)		(EN) [q1] [24h] [2 Credits]	x	x

**⊗ Molecular ecology**

● LBOE2124	Molecular ecology	Karine Van Doninck Renate Wesselingh	(EN) [q2] [36h+56h] [8 Credits] ⊕	x	x
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**⊗ Functional genomics**

● LBOE2165	Evolutionary genomics and transcriptomics		(EN) [q2] [30h+18h] [4 Credits] ⊖	x	x
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Year

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○ ESBOE2166	Ecological proteomics and epigenetics		EN [q2] [30h+18h] [4 Credits]	x	x
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### ⌘ Biologie de la conservation et de la restauration

○ LBOE2120	Conservation de la biodiversité	Nicolas Schtickzelle	FR [q1] [36h+12h] [4 Credits]	x	x
○ LBOE2125	Biodiversity and humans	Charles-Hubert Born Thierry Hance Charles Pence	FR [q1] [24h] [2 Credits]	x	x
○ LBOE2141	Ecologie de la restauration	Hans Van Dyck	FR [q1] [12h+12h] [2 Credits]	x	x

### ⌘ Ecologie spatiale

○ LBOE2140	Landscape ecology	Hans Van Dyck	EN [q1] [24h+24h] [4 Credits]	x	x
○ LBOE2150	Movement ecology		EN [q1] [24h+12h] [4 Credits] Δ	x	x

### ⌘ Ecologie des interactions

○ LBOE2160	Ecologie des interactions	Thierry Hance Hans Van Dyck Renate Wesselingh	FR [q1] [24h] [2 Credits]	x	x
○ LBOE2161	Ecologie comportementale	Hans Van Dyck	FR [q1] [24h+12h] [3 Credits]	x	x
○ LBOE2168	Interactions plantes-environnement	Stanley Lutts Muriel Quinet	FR [q1] [24h+12h] [3 Credits]	x	x

### ⌘ Ecologie et gestion des milieux aquatiques dulcicoles

○ ESBOE2123	Freshwater Biodiversity (UNamur)		FR [q1] [12h+24h] [3 Credits]	x	x
○ ESBOE2142	Ecology of natural and disturbed aquatic environments (UNamur)	Frederik De Laender (coord.)	FR [q1] [12h+20h] [2 Credits]	x	x
○ ESBOE2144	Resource management in fisheries and aquaculture		FR [q1] [18h+12h] [3 Credits]	x	x

### ⌘ Ecologie appliquée

○ LBOE2166	Lutte biologique	Claude Bragard Thierry Hance	FR [q2] [12h+24h] [3 Credits]	x	x
○ LBOE2185	Evolutionary applications	Hans Van Dyck	EN [q2] [20h] [2 Credits]	x	x
○ ESBOE2237	Biological water quality assessment (UNamur)		FR [q2] [24h+12h] [3 Credits]	x	x

## LISTE DES ACTIVITÉS AU CHOIX

- Mandatory
- ⊗ Optional
- △ Not offered in 2021-2022
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Year

1 2

## o Content:

## ⊗ Cours avancés

⊗ EBIOE2001	Marine Biodiversity: flora expertise (Roscoff)	Jérôme Mallefet (coord.)	FR [ ] [ ] [6 Credits]	X	X
⊗ EBIOE2002	Marine Biodiversity: wildlife expertise (Roscoff)	Jérôme Mallefet (coord.)	FR [ ] [ ] [6 Credits]	X	X
⊗ ESBIO2129	Genetic dynamics (UNamur)		EN [q1] [22h] [3 Credits]	X	X
⊗ ESBIO2132	Bacterial Genetics (UNamur)		EN [q1] [22h] [3 Credits]	X	X
⊗ ESBIO2201	Parasitology		EN [q1] [15h] [2 Credits]	X	X
⊗ ESBIO2205	Epidemiology		FR [q1] [15h] [2 Credits]	X	X
⊗ ESGOL2145	Pédologie		FR [q1] [12h+12h] [2 Credits]	X	X
⊗ ESGOL2146	Hydrogeology (UNamur)		FR [q1] [18h+12h] [3 Credits]	X	X
⊗ ESVET1301	Ethologie Appliquée		FR [q1] [15h] [2 Credits]	X	X
⊗ ESVET2202	Applied Physiology		EN [q1] [15h] [2 Credits]	X	X
⊗ ESVET2209	Molecular virology		EN [q1] [15h] [2 Credits]	X	X
⊗ LBIR1328	Climatology and hydrology applied to agronomy and the environment	Alice Alonso (compensates) Marnik Vanclooster Charles Bielders (coord.) Hugues Goosse	EN [q1] [45h+22.5h] [6 Credits]	X	X
⊗ LBIR1334	Introduction to forestry sciences	Quentin Ponette (coord.) Caroline Vincke	FR [q2] [22.5h+15h] [3 Credits]	X	X
⊗ LBIR1336	Sciences du sol et excursions intégrées	Yannick Agnan (coord.) Richard Lambert Caroline Vincke	FR [q2] [30h+37.5h] [5 Credits]	X	X
⊗ LBIR1362	Environmental Economics	Frédéric Gaspart	FR [q2] [30h+7.5h] [3 Credits]	X	X
⊗ LBIRE2105	Water - soil - air quality's Evaluation	Henri Halen Philippe Maetz Xavier Rollin (coord.)	FR [q1] [30h+0h] [3 Credits]	X	X
⊗ LBOE2122	Biodiversité du milieu marin	Cathy Debier Jean-François Rees	FR [q2] [24h] [2 Credits]	X	X
⊗ LBOE2143	Questions d'actualité en biologie marine	Cathy Debier Jérôme Mallefet Jean-François Rees	FR [q2] [24h] [2 Credits]	X	X
⊗ LBOE2148	Ecologie microbienne	Stephan Declerck	FR [q1] [24h] [2 Credits]	X	X
⊗ LBOE2292	Modélisation écologique et évolutive	Renate Wesselingh	FR [q1] [12h+36h] [4 Credits]	X	X
⊗ LENVI2011	Méthodes d'évaluation et de gestion environnementale	Jean-Pierre Tack	FR [q2] [30h] [3 Credits]	X	X
⊗ LGEO2401	Paléontologie des vertébrés	Emmanuel Gilissen	FR [q2] [22.5h] [2 Credits]	X	X
⊗ ESGOL1210	Paleontology		FR [q1] [24h+40h] [6 Credits]	X	X
⊗ LBIRF2106	Analyse et gestion des habitats et des espèces	Anne-Laure Jacquemart (coord.)	FR [q2] [30h+22.5h] [5 Credits]	X	X

## ⊗ Télédéttection et aménagement

⊗ LGEO1343	Earth observation by satellite	Eric Lambin	FR [q1] [30h+30h] [5 Credits]	X	X
⊗ LGEO2140	Advanced physical geography	Kristof Van Oost Veerle Vanacker	FR [q2] [30h+30h] [5 Credits] ⊕	X	X

				Year	
				1	2
⊗ LBRAT2101	Suburban and rural space development	Pierre Defourny (coord.) Yves Hanin Marie Pairon	FB [q1] [45h+15h] [5 Credits]	X	X
⊗ LBRTI2101A	Data Science in bioscience engineering	Patrick Bogaert Emmanuel Hanert	FB [q1] [22.5h+15h] [3 Credits]	X	X
⊗ LBIRE2102	Applied Geomatic	Pierre Defourny	FB [q1] [30h+22.5h] [4 Credits]	X	X
⊗ ESGOG1201	Introduction aux systèmes d'informations géographiques (UNamur)		FB [q1] [15h+20h] [4 Credits]	X	X
⊗ ESGOG1301	Modélisation spatiale et SIG (UNamur)		FB [q2] [20h+30h] [4 Credits]	X	X

### ⊗ Cours d'ouverture

⊗ LDROP2101	Management of Intellectual Property Rights	Dominique Kaesmacher François Wéry	EN [q2] [30h] [5 Credits]	X	X
⊗ LDROP2102	Droits intellectuels et nouvelles technologies	Alain Strowel	FB [q2] [30h] [5 Credits]	X	X
⊗ LDROP2061	Sustainable Development Law	Charles-Hubert Born	FB [q2] [30h] [5 Credits]	X	X
⊗ LDROP2063	Sectoral Environmental Law	Valérie Dupont Damien Jans	FB [q2] [30h] [5 Credits]	X	X
⊗ WMD2290	Introduction à la science des animaux de laboratoire		FB [q1] [35h+10h] [3 Credits]	X	X
⊗ ESFCM2101	Formation en expérimentation animale niveau technicien: techniques, méthodes alternatives, législation et éthique (UNamur)		FB [q2] [40h] [4 Credits]	X	X
⊗ ESFCM2201	Formation de maître d'expériences en manipulation animale (UNamur - SFCM M201)		FB [q1] [40h] [4 Credits]	X	X
⊗ ES BIO2222	Gestion des ressources humaines (UNamur)		FB [q2] [15h] [2 Credits]	X	X
⊗ ESGES2203	Gestion de l'entreprise (UNamur)		FB [q2] [15h] [2 Credits]	X	X

### ⊗ Cours au choix complémentaires à la finalité didactique de l'UCL

⊗ LSCI2330	Séminaire de recherche en didactique des sciences	Myriam De Kesel Jim Plumet	FB [q2] [15h+30h] [5 Credits]	X	X
⊗ LAGRE2310	Micro-teaching exercises	Pascalina Papadimitriou Dominique Vandercammen	FB [q1] [15h] [2 Credits]	X	X
⊗ LAGRE2221	Learning and teaching with new technologies	Sandrine Decamps	FB [q1] [15h+15h] [2 Credits]	X	X
⊗ LGEO2330	Séminaire de didactique de la géographie		FB [q2] [0h+30h] [5 Credits] Δ	X	X
⊗ LMAT2330	Seminar on the teaching of mathematics	Enrico Vitale	FB [q1+q2] [15h+30h] [4 Credits] Δ	X	X

## FORMATION INTERDISCIPLINAIRE EN CRÉATION D'ENTREPRISE (CPME)

- Mandatory
- ⊗ Optional
- △ Not offered in 2021-2022
- ⊙ Not offered in 2021-2022 but offered the following year
- ⊕ Offered in 2021-2022 but not the following year
- △ ⊕ Not offered in 2021-2022 or the following year
- Activity with requisites
- 🌐 Open to international students
- 🚫 Not open to international students
- (FR) Teaching language (FR, EN, ES, NL, DE, ...)

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

From 20 to 25 credits

Year

1 2

### Content:

⊗ LCPME2000	Venture creation financement and management I	Yves De Rongé Olivier Giacomini	(FR) [q1] [30h+15h] [5 Credits]	X	
○ LCPME2001	Entrepreneurship Theory (in French)	Frank Janssen	(FR) [q1] [30h+20h] [5 Credits]	X	
○ LCPME2002	Managerial, legal and economic aspects of the creation of a company (in French)	Yves De Cordt Marine Falize	(FR) [q1] [30h+15h] [5 Credits]	X	
○ LCPME2004	Advanced seminar on Entrepreneurship (in French)	Frank Janssen	(FR) [q2] [30h+15h] [5 Credits]	X	
○ LCPME2003	Business plan of the creation of a company (in French)	Frank Janssen	(FR) [q2] [30h+15h] [5 Credits]		X

## OPTIONAL COURSES

- Mandatory
- ⊗ Optional
- △ Not offered in 2021-2022
- ⊙ Not offered in 2021-2022 but offered the following year
- ⊕ Offered in 2021-2022 but not the following year
- △ ⊕ Not offered in 2021-2022 or the following year
- Activity with requisites
- 🌐 Open to international students
- 🚫 Not open to international students
- (FR) Teaching language (FR, EN, ES, NL, DE, ...)

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

These credits are not counted within the 120 required credits.

Year

1 2

### Content:

⊗ LSST1001	IngénieuxSud	Stéphanie Merle Jean-Pierre Raskin (coord.)	(FR) [q1+q2] [15h+45h] [5 Credits]	X	X
⊗ LSST1002M	Information and critical thinking - MOOC	Myriam De Kesel Jean-François Rees	(FR) [q2] [30h+15h] [3 Credits]	X	X

## 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.**

In some cases, a complementary program (maximum 60 ECTS) consisting of courses from the bachelor in biology will be required, in coordination with the Academic Advisor, and based on the student's previous background and training.

## Course prerequisites

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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

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

## BOE2M - Information

### Access Requirements

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

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

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

#### SUMMARY

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

### Specific access requirements

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

Students wishing to access the didactic purpose must provide proof of a mastery of the French language at level C1 of the CEFR.

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

### University Bachelors

Diploma	Special Requirements	Access	Remarks
<b>UCLouvain Bachelors</b>			
<a href="#">Bachelor in Biology</a>		Direct access	
<a href="#">Bachelor in Chemistry</a>	Mineure en biologie	Access with additional training	In some cases, the UCLouvain Enrolment Office, after reviewing their online enrolment or re-enrolment application, will ask the students concerned to provide an enrolment authorisation from the faculty/school.
<a href="#">Bachelor in Bioengineering</a>		Access with additional training	
<b>Others Bachelors of the French speaking Community of Belgium</b>			
		Direct access	
Bachelier en sciences de l'ingénieur - orientation bioingénieur		Access based on application	
<b>Bachelors of the Dutch speaking Community of Belgium</b>			
		Access with additional training	
<b>Foreign Bachelors</b>			
		Access based on application	

### Non university Bachelors

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



Diploma	Access	Remarks
BA - technologue de laboratoire médical - HE - crédits supplémentaires entre 45 et 60 BA en agronomie (techniques et gestion agricoles) - EPS - crédits supplémentaires entre 45 et 60 BA en agronomie (toutes orientations) - HE - crédits supplémentaires entre 45 et 60 BA en chimie (biochimie, biotechnologie, chimie appliquée) - EPS - crédits supplémentaires entre 45 et 60 BA en chimie (biochimie, biotechnologie, chimie appliquée, environnement) - HE - crédits supplémentaires entre 45 et 60	Les enseignements supplémentaires éventuels peuvent être consultés dans <a href="#">le module complémentaire</a> .	Type court

### Holders of a 2nd cycle University degree

Diploma	Special Requirements	Access	Remarks
<b>"Licenciés"</b>			
		Direct access	
<b>Masters</b>			
		Direct access	

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

#### Access based on validation of professional experience

> It is possible, under certain conditions, to use one's personal and professional experience to enter a university course without having the required qualifications. However, validation of prior experience does not automatically apply to all courses. Find out more about [Validation of priori experience](#).

#### Access based on application

Admission on the basis of a submitted dossier may be granted either directly or on the condition of completing additional coursework of a maximum of 60 ECTS credits, or refused.

The first step in the procedure is to submit a file online ( see <https://uclouvain.be/en/study/inscriptions/futurs-etudiants.html>).

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

#### Admission and Enrolment Procedures for general registration

## Specific professional rules

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Successful completion of the master's course with **teaching focus** leads to the award of the master's degree with teaching focus and the title of secondary school education specialist.

The [Réforme des Titres et Fonctions](#) ("Titles and Functions Reform"), in force since 1 September 2016, is intended to harmonise the titles, functions and pay scales of basic and secondary education professionals in French Community of Belgium networks.

It also aims to guarantee the priority of preferred titles over minimum titles and to establish a regime for titles in short supply.

AESS holders can learn which functions they can carry out and the pay scales from which they can benefit by [clicking here](#).

The university cannot be held responsible for any problems that students may encounter at a later date with a view to a teaching appointment in the French Community of Belgium.

## Teaching method

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Inter-university cooperation between UCL and FUNDP, where complementary research in ecology is carried out, means that the range of available courses is much wider than at each individual university. We have built a programme with joint training of 16 credits and four option courses of 22 credits each. These option courses are mainly focused on subjects which cut across the boundaries between the plant and animal and the terrestrial and aquatic worlds. The structure of the programme enables students to diversify and individualize their studies with 18 credits for optional activities. The dissertation begins in the second semester of the first year and is defended at the end of the first semester of the second year: this is convenient for doing field research during the spring and summer. The placement (25 credits) in the second semester of the second year widens experience of scientific research for those doing the research focus and introduces students doing the professional focus to a professional environment. All students must return for the last five credits in advanced training; there is also a debriefing and an opportunity to exchange experiences with the other students.

## Evaluation

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***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".***

Students will mainly be assessed on the basis of individual work (e.g. reading, consultation of databases and bibliographic references, writing monographs and reports, presentation of seminars, dissertation and work placement). Where necessary, students will also be assessed on how much they have learned from lectures. As far as possible, there will be continuous assessment, including regular 'open book examinations'. Certain activities will not be given a precise mark but will be officially certified. Assessment of the dissertation is in two stages : a 'progress report' at the end of the first year of the Master and the final presentation.

## Mobility and/or Internationalisation outlook

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Students doing the research focus are invited to attend a foreign university, under the Socrates or Mercator exchange schemes, during the second semester of the second year of the Master to do their placement and/or do a part of their dissertation during the dissertation period and possibly also take some optional activities.

For students doing the professional focus, it may be more logical to stay in Belgium, but they may take advantage of the opportunity for an exchange visit during their dissertation. Mobility in the first semester of the first year of the Master may also be possible, providing equivalents for the core subjects and some of the option courses can be found. In the same way, students from foreign universities can come to UCL to take selected activities from our Master programme and/or do a part of their final dissertation.

## Possible trainings at the end of the programme

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Whatever focus is chosen, the Master in Biology of Organisms and Ecology gives direct access to the doctorate in science.

## Contacts

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### Curriculum Management

Entity

Structure entity SST/SC/BIOL  
Denomination (BIOL)  
Faculty Faculty of Science (SC)  
Sector Sciences and Technology (SST)  
Acronym BIOL  
Postal address Croix du sud 4-5 - bte L7.07.05  
1348 Louvain-la-Neuve

Website

Tel: +32 (0) 10 47 34 89 - Fax: +32 (0) 10 47 35 15  
<https://uclouvain.be/fr/facultes/sc/biol>

Academic supervisor: [Renate Wesselingh](#)

Jury

- President: [Renate Wesselingh](#)
- Secretary: [frederik.delaender@unamur.be](mailto:frederik.delaender@unamur.be)
- Study advisor: [André Lejeune](#)

Useful Contact(s)

- Administrative manager for the student's annual program: [Aloysia Stephenne](#)
- Secretary of the School of biology: [Bernadette Gravy](#)

