

**At Louvain-la-Neuve - 120 credits - 2 years - Day schedule - In French**Dissertation/Graduation Project : **YES** - Internship : **NO**Activities in English: **YES** - Activities in other languages : **NO**Activities on other sites : **NO**Main study domain : **Sciences agronomiques et ingénierie biologique**Organized by: **Faculty of bioscience engineering (AGRO)**Programme acronym: **SAIV2M** - Francophone Certification Framework: 7**Table of contents**

Introduction .....	2
Teaching profile .....	4
Learning outcomes .....	4
Programme structure .....	4
Programme .....	4
Detailed programme by subject .....	4
Course prerequisites .....	13
The programme's courses and learning outcomes .....	13
Information .....	14
Access Requirements .....	14
Teaching method .....	17
Evaluation .....	17
Mobility and/or Internationalisation outlook .....	17
Possible trainings at the end of the programme .....	18
Contacts .....	18

## SAIV2M - Introduction

### Introduction

#### Introduction

Master [120] in Agriculture and Bio-industries develops

- the ability to analyze and diagnose agronomic problems
- ability to understand multi-scale and multi-disciplinary processes
- the ability to manage integrated projects in dialogue with other specialists.

It trains graduates who are able to critically mobilize a body of knowledge and know-how in agronomic and economic sciences to formulate, analyze and solve a multidisciplinary problem in these fields.

At the end of this Master's degree, you will be able to design relevant and innovative technological and scientific solutions for the development of products, process systems or services in this field of specialization.

#### Your profile

This **Master's programme** is for you if you are interested in:

- the relevance, diversity and career opportunities contained in this Master's programme,
- the international feature of the programme, attracting students with diverse backgrounds from all over the world and preparing professionals for a future global job market,
- the opportunity to study in two different partner universities in two European countries and, for the program AFEPA, acquire a double or joint Master's degree.

#### Your future job

**Graduates** from this Master's programme are well qualified to take responsibilities in international, national and regional agencies, non-governmental organisations, consultancy firms, professional organisations and private companies with a focus in policy design, analysis and implementation. Because of the research orientation of this Master's programme, they are also well prepared for doctoral studies.

#### Your programme

This Master's programme is structured in four blocks of teaching and learning activities totalling 120 ECTS credits.

It offers basic knowledge and skills and options to choose from at UCL or at a partner university.

Two professional focus are possible:

- Professional focus in soil sciences (MISOL)
- Professional focus: Agricultural, Food and Environmental Analysis (AFEPA)

The MISSOL program is an international master's degree initiated by Sorbonne Universities. It is designed to allow you to spend an exchange year in one of the 3 partner universities:

- University Antananarivo (Madagascar)
- University Nangui Abrogoua, Abidjan (Côte d'Ivoire)
- University science and technology, Hanoi (Vietnam).

If you are selected, this exchange can be funded by an Erasmus + grant.

Structure of the program MISSOL

1. A core set of compulsory learning activities for 40 ECTS credits (Master's thesis, two summer schools)
2. A professional focus of compulsory courses for 30 ECTS credits
3. 50 ECTS credits to be chosen in a list of courses

The AFEPA program is an international master's degree which involves different universities:

The main partner universities are:

- Università Cattolica del Sacro Cuore (UCSC) in Milano, Italy
- Rheinische Friedrich-Wilhelms-Universität (UBonn) in Bonn, Germany
- Swedish University of Agricultural Sciences (SLU) in Uppsala, Sweden
- Université catholique de Louvain (UCLouvain) in Louvain-la-neuve, Belgium

The following universities are associated with the program:

- Pontificia Universidad Católica (PUC) in Santiago, Chile
- University of Alberta (UALberta) in Edmonton, Canada
- Universitat Politècnica de Catalunya (UPC) in Barcelona, Spain
- African Economic Research Consortium (AERC) in Nairobi, Kenya

If you are selected, this exchange can be funded by an Erasmus + grant.

Structure of the program AFEPA

1. A core set of compulsory learning activities for 40 ECTS credits (Master's thesis, two summer schools)

2. A professional focus of compulsory courses for 30 ECTS credits (microeconomic theory, agricultural and trade policy, quantitative methods)
3. An option with optional courses for 30 ECTS credits that can be grouped into five subject areas:
  - i. agri-food and trade policy (at UCL and partner universities)
  - ii. development policy at UCL (at UCL and partner universities)
  - iii. environmental and natural resource policy (at partner universities)
  - iv. agribusiness and market analysis (at partner universities)
  - v. market and consumer research (at partner universities)
4. A set of supplementary courses, including a language course, for 20 ECTS credits.

The language of instruction and examination is English for all the courses at SLU, UAlberta, UBonn and UCSC, and for most of the courses at UCL and UPC, but in Spanish for most of the courses at PUC. Examination can be organized in English at all partners.

## SAIV2M - Teaching profile

### Learning outcomes

By the end of this Master's programme, the graduate student is:

1. aware of the economic, social and environmental dimensions of the performance and competitiveness of the agricultural and food sectors and other profit (market) and non-profit (non-market) activities in rural areas,
2. able to understand the fundamentals of recent economic theory as well as its strengths and weaknesses,
3. able to use and apply adequate methods and tools to address and analyse socio-economic and environmental problems that are observed or anticipated in the agricultural and food sectors and rural areas in different development contexts,
4. able to use complementary approaches from other disciplines when needed,
5. able to perform sound quantitative economic analysis and anticipate possible effects of policy and regulation reforms,
6. able to interpret results and derive policy implications and recommendations,
7. able to draw from European experience and expertise in designing and evaluating policy and regulatory reforms given the economic, social, environmental and ethical dimensions of the issues facing societies expressing structural change, and
8. able to communicate their methods and results to both specialised and non-specialised audiences, in at least two European languages.

The main objective of this Master's programme is that graduates be qualified to use and apply adequate methods to analyse socio-economic problems, formulate policy recommendations and understand the risks and consequences of any given economic policy measures, especially those oriented to the agricultural and food sector, rural areas as well as natural resources and their environment. In particular, graduates are expected to be able to use and develop quantitative methods to perform rigorous socio-economic and environmental assessments of these public policies, and provide sound and relevant policy recommendations to a better sustainable development of rural areas.

### Programme structure

Le programme est formé par :

- le tronc commun (dont le contenu varie en cas de participation au programme AFEPA)
- la finalité spécialisée (dont le contenu varie en cas de participation au programme AFEPA)
- une filière à choisir parmi 6 et comprenant une option et son ou ses complément(s) d'option
- un complément d'option interdisciplinaire en création d'entreprise accessible quelle que soit l'option
- la possibilité de faire un stage d'insertion socio-professionnelle.

\*La participation au programme [Erasmus Mundus interuniversitaire AFEPA](#) (**Agricultural, Food and Environmental Policy Analysis**) fait également l'objet d'une sélection.

## SAIV2M Programme

### Detailed programme by subject

**CORE COURSES [40.0]**

- 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

x

○ LSAIV2200	Masters thesis		FR [q1+q2] [] [27 Credits]			x
-------------	----------------	--	----------------------------	--	--	---

**○ Master thesis (3 credits)**

L'étudiant choisira LBIRA2210 pour la finalité AFEPA et LBIRE2210 pour les finalités MISSOL et GEM.

⊗ LBIRA2210	Master thesis' accompanying seminar	Philippe Baret Pierre Bertin (coord.) Cathy Debier Frédéric Gaspard Anne Legrève	EN [q1+q2] [30h] [3 Credits]	x	x
⊗ LBIRE2210	Master thesis' accompanying seminar	Charles Bielders Patrick Bogaert (coord.) Sophie Opfergelt (compensates Pierre Delmelle) Caroline Vincke	EN [q1+q2] [30h] [3 Credits]	x	x

**⊗ Activités pour la finalité Agricultural, Food and Environmental Policy Analysis (AFEPA)**

○ LBRAI2218	Special Topics in Agricultural Economics	Frédéric Gaspard Goedele Van den Broeck (coord.)	EN [q1] [30h+22.5h] [5 Credits]		x
-------------	--	--	---------------------------------	--	---

○ Free choice of courses for 5 credits.

**⊗ Activités pour la finalité Sciences du sol (MISOL)**

○ Free choice of courses for 10 credits.

**⊗ Activités pour la finalité "GISciences and EO for Environmental Modelling and Management (GEM)"**

From 0 to 0 credits

**○ Activities for applied geospatial science (GEM) (10 credits)**

Students who take the "Land Use System" option will take 10 courses for 10 credits. Students who follow the "Food security" option, will register for the internship for 10 credits (LBIR2000)

From 10 to 10 credits

**○ Les étudiants qui suivent l'option "Food security", s'inscriront au stage pour 10 crédits (10 credits)**

From 10 to 10 credits

**LIST OF FOCUSES**

- > Professional Focus: Agricultural, Food and Environmental Policy Analysis [ en-prog-2021-saiv2m-lsaiv220s ]
- > Professional Focus: Soil Science [ en-prog-2021-saiv2m-lsaiv210s ]
- > Professional Focus: Geo-Information Science and Earth Observation for Environmental Modelling and Management [ en-prog-2021-saiv2m-lsaiv230s ]

**PROFESSIONAL FOCUS: AGRICULTURAL, FOOD AND ENVIRONMENTAL POLICY ANALYSIS [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

1 2

**o Content:**

Course ID	Course Title	Instructor	Language	Period	Hours	Credits	Year 1	Year 2
LBRAI2208	Firms and Markets : Strategic Analysis	Frédéric Gaspard	EN	[q1]	[30h]	[5 Credits]	X	
LECON2353	Labour Productivity	Vincent Vandenberghe	EN	[q2]	[30h]	[5 Credits]	X	
LECON2411	Norms and Public Intervention	François Maniquet	EN	[q2]	[30h]	[5 Credits]	X	
LECON2607	Public Economics	Jean Hindriks	EN	[q2]	[30h]	[5 Credits]	X	

**o One course to be chosen amongst the suggested list:**

LBIRA2110B	Applied Econometrics	Xavier Draye Frédéric Gaspard Bernadette Govaerts	FR	[q1]	[27.5h+7.5h]	[3 Credits]	X	
LECGE1316	Econometrics	Michel Beine (compensates Muriel Dejemeppe)	FR	[q1]	[30h+15h]	[5 Credits]	X	
LECON2033	Applied econometrics: Microeconometrics	Bertrand Verheyden (compensates Muriel Dejemeppe)	FR	[q1]	[30h+12h]	[5 Credits]	X	
LINGE1221	Econometrics	Sébastien Van Bellegem	FR	[q2]	[30h+15h]	[5 Credits]	X	

**o One course to be chosen amongst the suggested list:**

LECON2041	International Trade	Gonzague Vannoorenberghe	EN	[q2]	[30h]	[5 Credits]	X	
LECON2865	Trade Policy and International Cooperation - UNamur		EN	[q2]	[30h]	[5 Credits]	X	

**PROFESSIONAL FOCUS: SOIL SCIENCE [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

1 2

**o Content:**

				1	2
○ LBIRE2102	Applied Geomatic	Pierre Defourny	(FR) [q1] [30h+22.5h] [4 Credits]	X	X
○ LBIRE2104	Applied soil sciences	Yannick Agnan Pierre Delmelle (coord.) Brieuc Hardy (compensates Pierre Delmelle)	(FR) [q1] [22.5h+22.5h] [5 Credits]	X	X
○ LBRES2102	Engineering of the water and the pollutants in grounds and groundwaters	Marnik Vanclooster	(FR) [q2] [22.5h+22.5h] [4 Credits]	X	X
○ LBRES2103	Soil physics applied to Agronomy and Environment	Charles Bielders (coord.) Mathieu Javaux	(FR) [q1] [30h+15h] [4 Credits]	X	X
○ LBRES2105	Soil erosion and conservation	Charles Bielders	(EN) [q2] [22.5h+22.5h] [4 Credits]	X	X
○ LBRES2203	Soil management and planning in warm regions	Charles Bielders (coord.) Bruno Delvaux	(FR) [q2] [22.5h+7.5h] [3 Credits]	X	X
○ LBRES2218	Séminaires professionnels en gestion des ressources en eau et sol et technologies environnementales + excursions	Charles Bielders Marnik Vanclooster (coord.)	(FR) [q1+q2] [22.5h+15h] [3 Credits]	X	X
○ LBRTI2101A	Data Science in bioscience engineering	Patrick Bogaert Emmanuel Hanert	(FR) [q1] [22.5h+15h] [3 Credits]	X	X

## PROFESSIONAL FOCUS: GEO-INFORMATION SCIENCE AND EARTH OBSERVATION FOR ENVIRONMENTAL MODELLING AND MANAGEMENT [30.0]

### OPTIONS [50.0]

Les étudiants ont le choix entre 6 filières composées chacune d'une option suivie obligatoirement d'un ou des complément(s) d'option s'y rapportant.

Les étudiants qui souhaitent suivre la formation [interdisciplinaire en Création d'entreprise \(CPME\)](#) doivent s'y inscrire en même temps dès l'entrée dans le cycle de master. Ce programme remplacera alors le complément d'option de la filière que l'étudiant a choisi.

Attention: l'inscription à cette formation fait l'objet d'une sélection qui a lieu au moment de la rentrée académique. Une fois sélectionnés, les étudiants prendront contact avec le [vice-doyen](#) pour aménager leur programme de cours personnel et répartir les cours CPME sur les deux années du cycle.

Pour la filière [Erasmus Mundus interuniversitaire AFEPA \( Agricultural, Food and Environmental Policy Analysis\)](#), la participation à ce programme fait également l'objet d'une sélection dont les modalités sont décrites à la page suivante: [www.uclouvain.be/afepa](http://www.uclouvain.be/afepa)

- > [Agricultural, Food and Environmental Policy Analysis](#) [ en-prog-2021-saiv2m-lbira923o ]
- > [Courses AFEPA to be chosen amongst the following list](#) [ en-prog-2021-saiv2m-lbira935o ]
- > [Courses MISSOL](#) [ en-prog-2021-saiv2m-lsaiv936o ]
- > [Land use system or Food security \(Option GEM\)](#) [ en-prog-2021-saiv2m-lsaiv937o ]

### AGRICULTURAL, FOOD AND ENVIRONMENTAL POLICY ANALYSIS [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

1 2

#### Content:

○ LBIRA2105	<a href="#">Agricultural and rural policies</a>	Bruno Henry de Frahan	EN [q1] [30h] [3 Credits]	X	
○ LBIRE2205A	<a href="#">Decision tools and project management - Decision tools</a>	Frédéric Gaspart	EN [q1] [22.5h+7.5h] [3 Credits]	X	
○ LBRAI2213	<a href="#">Impact evaluation in agriculture</a>	Goedele Van den Broeck	EN [q2] [30h+8h] [4 Credits]	X	

#### Courses to be chosen for 20 credits amongst the following list:

⊗ LBIR1362	<a href="#">Environmental Economics</a>	Frédéric Gaspart	FR [q2] [30h+7.5h] [4 Credits]	X	
⊗ LBIRA2109	<a href="#">Agrarian systems and farm</a>	Pierre Bertin	FR [q1] [30h+0h] [5 Credits]	X	
⊗ LBIRE2102B	<a href="#">APPLIED GEOMATICS</a>	Pierre Defourny	FR [q1] [22.5h+7.5h] [3 Credits]	X	
⊗ LBRAI2210	<a href="#">Microeconomics of Development</a>	Frédéric Gaspart	EN [q1] [30h] [3 Credits]	X	
⊗ LBRAI2212	<a href="#">Economics of Rural Development</a>	Frédéric Gaspart (coord.) Goedele Van den Broeck	EN [q1] [30h] [3 Credits]	X	
⊗ LECON2314	<a href="#">Economic Geography</a>	Joseph Gomes	EN [q2] [30h] [5 Credits]	X	
○ LECON2828	<a href="#">Development Macroeconomics - UNamur UNamur course</a>		EN [q2] [30h] [5 Credits]		X



Year

1 2

⌘ LGEO2130	Fundamentals of geographic and environmental modelling	Eric Deleersnijder Sophie Vanwambeke	EN [q2] [30h+30h] [5 Credits]	x	
⌘ LGEO1321	Human and Economic geography 1	Patrick Meyfroidt Sophie Vanwambeke	EN [q2] [22.5h+22.5h] [4 Credits]	x	

---

## COURSES AFEPA TO BE CHOSEN AMONGST THE FOLLOWING LIST [20.0]

- 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

### o Content:

Les crédits du stage d'insertion socio-professionnelle varient de 6 à 12 crédits en fonction de la validation par le responsable de programme.

⊗ LBIR2004A	Masters Internship	Charles Bielders Damien Debecker (coord.) Xavier Draye Anne-Laure Jacquemart	(FR) [q2] [] [6 Credits]		X
⊗ LBIRA2105	Agricultural and rural policies	Bruno Henry de Frahan	(EN) [q1] [30h] [3 Credits]		X
⊗ LBIRA2109	Agrarian systems and farm	Pierre Bertin	(FR) [q1] [30h+0h] [5 Credits]		X
⊗ LBIRE2102B	APPLIED GEOMATICS	Pierre Defourny	(FR) [q1] [22.5h+7.5h] [3 Credits]		X
⊗ LBIRE2205A	Decision tools and project management - Decision tools	Frédéric Gaspart	(EN) [q1] [22.5h+7.5h] [3 Credits]		X
⊗ LBRAI2208	Firms and Markets : Strategic Analysis	Frédéric Gaspart	(EN) [q1] [30h] [5 Credits]		X
⊗ LBRAI2210	Microeconomics of Development	Frédéric Gaspart	(EN) [q1] [30h] [3 Credits]		X
⊗ LBRAI2212	Economics of Rural Development	Frédéric Gaspart (coord.) Goedele Van den Broeck	(EN) [q1] [30h] [3 Credits]		X
⊗ LBRAI2213	Impact evaluation in agriculture	Goedele Van den Broeck	(EN) [q2] [30h+8h] [4 Credits]		X
⊗ LBRES2204	Integrated water management of water resources	François Jonard Marnik Vanclooster (coord.)	(FR) [q1] [22.5h+22.5h] [5 Credits]		X
⊗ LECON2031	Applied Econometrics : Time Series	Francesca Monti	(EN) [q1] [30h+12h] [5 Credits]		X
⊗ LECON2033	Applied econometrics: Microeconometrics	Bertrand Verheyden (compensates Muriel Dejemeppe)	(FR) [q1] [30h+12h] [5 Credits]		X
⊗ LECON2828	Development Macroeconomics - UNamur UNamur course		(EN) [q2] [30h] [5 Credits]		X
⊗ LECON2314	Economic Geography	Joseph Gomes	(EN) [q2] [30h] [5 Credits]		X
⊗ LECON2352	Methods for the evaluation of public policies	William Parienté	(FR) [q1] [30h] [5 Credits]		X
⊗ LECON2607	Public Economics	Jean Hindriks	(EN) [q2] [30h] [5 Credits]		X
⊗ LECON2865	Trade Policy and International Cooperation - UNamur		(EN) [q2] [30h] [5 Credits]		X
⊗ LGEO2130	Fundamentals of geographic and environmental modelling	Eric Deleersnijder Sophie Vanwambeke	(EN) [q2] [30h+30h] [5 Credits]		X

## COURSES MISSOL [50.0]

- 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

## o Courses to be chosen amongst the following list for 50 credits

Course Code	Course Title	Instructors	Language	Hours	Credits	Year 1	Year 2
⊗ LANGL2480	English Communication Skills for Bioengineers	Ahmed Adriouèche Maïté Dupont Dominique François Sandrine Meirlaen Lucille Meyers Charlotte Peters Adrien Pham (coord.) Anne-Julie Toubeau	EN	[q2] [30h]	[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
⊗ 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 Gaspard	FR	[q2] [30h+7.5h]	[3 Credits]	X	X
⊗ LBIRA2105	Agricultural and rural policies	Bruno Henry de Frahan	EN	[q1] [30h]	[3 Credits]	X	X
⊗ LBIRA2109	Agrarian systems and farm	Pierre Bertin	FR	[q1] [30h+0h]	[5 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
⊗ LBIRE2131	Evaluation d'impact environnemental: diagnostic et indicateurs	Charles Bielders (coord.) Pierre Defourmy	FR	[q2] [22.5h]	[3 Credits]	X	X
● LBIRE2205A	Decision tools and project management - Decision tools	Frédéric Gaspard	EN	[q1] [22.5h+7.5h]	[3 Credits]	X	X
⊗ LBRAI2210	Microeconomics of Development	Frédéric Gaspard	EN	[q1] [30h]	[3 Credits]	X	X
⊗ LBRAI2212	Economics of Rural Development	Frédéric Gaspard (coord.) Goedele Van den Broeck	EN	[q1] [30h]	[3 Credits]	X	X
⊗ LBRES2101B	Smart technologies for environmental engineering	François Jonard Sébastien Lambot	FR	[q1] [22.5h+15h]	[3 Credits]	X	X
⊗ LBRES2104	IRRIGATION AND DRAINAGE	Mathieu Javaux	FR	[q2] [22.5h+22.5h]	[4 Credits]	X	X
⊗ LBRES2204	Integrated water management of water resources	François Jonard Marnik Vanclooster (coord.)	FR	[q1] [22.5h+22.5h]	[4 Credits]	X	X
⊗ LBRES2206	Advanced Hydrology for Engineers	Mathieu Javaux	EN	[q1] [22.5h+15h]	[3 Credits]	X	X
⊗ LBRTE2101	Applied hydro-biogeochemistry - Applied hydro-biogeochemistry	Pierre Delmelle Patrick Gerin (coord.)	EN	[q1] [30h+15h]	[4 Credits]	X	X
⊗ LECON2828	Development Macroeconomics - UNamur UNamur course		EN	[q2] [30h]	[5 Credits]	X	X
⊗ LENVI2005	Changements climatiques: impacts et solutions	Yannick Agnan (compensates) Pierre Delmelle Philippe Marbaix Jean-Pascal van Ypersele de Strihou (coord.)	FR	[q2] [30h]	[3 Credits]	X	X
⊗ LGCIV2073	Hydrogeology and Geoenvironment	Pierre-Yves Bolly	EN	[q1] [30h]	[3 Credits]	X	X

Year

1 2

⊗ LGEO1321	Human and Economic geography 1	Patrick Meyfroidt Sophie Vanwambeke	FR [q2] [22.5h+22.5h] [4 Credits]	x	x
⊗ LGEO2120	Applied geomorphology	Bas van Wesemael	FR [q1] [30h+30h] [5 Credits]	x	x
⊗ LSGED2210	Hydrology of Tropical areas	Alice Alonso (compensates Marnik Vanclooster) François Jonard (coord.)	FR [q2] [24h] [2 Credits]	x	x
⊗ LSGED2220	Environmental modelling for Developing Countries	Mathieu Javaux	FR [q2] [24h] [2 Credits]	x	x
⊗ LSTAT2110A	Analyse des données	Johan Segers	FR [q1] [1.5h+7.5h] [3 Credits]	x	x

## LAND USE SYSTEM OR FOOD SECURITY (OPTION GEM)

### 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 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.

## SAIV2M - 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

#### Admission conditions

General and specific admission requirements for this Master's programme must be satisfied at the time of enrolling at UCL:

1. having acquired a Bachelor's degree or an equivalent academic degree of minimum three years of undergraduate study corresponding to 180 ECTS credits;
2. having followed courses in mathematics, statistics and economics at an introductory level is mandatory; having an additional introduction to agricultural, environmental or food sciences is recommended; and
3. proofing English proficiency at the minimum level of B2 of the Common European Framework of Reference for Languages ( see [www.coe.int/en/web/portfolio](http://www.coe.int/en/web/portfolio)).

Applicants not meeting these admission conditions need to follow additional supplementary courses. The modified study programme will be established with the Study Adviser of the Faculty.

The admission to the inter-university AFEPA programme is subject to specific conditions including English proficiency at the minimum level of a TOEFL score of 550 (paper version) or 80 (internet version) or an overall band IELTS score of 6.5 with no sectional score below 5.5 or with a signal deemed equivalent. Notwithstanding these admission criteria, individual partner institutions reserve their right to determine the final admission eligibility of each applicant.

Applicants are requested to respect deadlines for their application. Additional information is provided at

### University Bachelors

Diploma	Special Requirements	Access	Remarks
<b>UCLouvain Bachelors</b>			
Bachelier en sciences géographiques	voir <a href="http://www.uclouvain.be/afepa">www.uclouvain.be/afepa</a>	Access based on application	
Bachelier en sciences économiques	voir <a href="http://www.uclouvain.be/afepa">www.uclouvain.be/afepa</a>	Access based on application	
BIR1BA	voir <a href="http://www.uclouvain.be/afepa">www.uclouvain.be/afepa</a>	Access based on application	
<b>Others Bachelors of the French speaking Community of Belgium</b>			
Bachelier en sciences géographiques et/ou environnementales	voir <a href="http://www.uclouvain.be/afepa">www.uclouvain.be/afepa</a>	Access based on application	
Bachelier en sciences sociales et/ou économiques	voir <a href="http://www.uclouvain.be/afepa">www.uclouvain.be/afepa</a>	Access based on application	

Bachelier en sciences de l'ingénieur, orientation bioingénieur	voir <a href="http://www.uclouvain.be/afepa">www.uclouvain.be/afepa</a>	Access based on application
--	---	-----------------------------

#### Bachelors of the Dutch speaking Community of Belgium

Tout grade de bachelier en sciences sociales, économiques, agronomiques, géographiques et/ou environnementales	voir <a href="http://www.uclouvain.be/afepa">www.uclouvain.be/afepa</a>	Access based on application
--	---	-----------------------------

#### Foreign Bachelors

Tout grade de bachelier en sciences sociales, économiques, agronomiques, géographiques et/ou environnementales	voir <a href="http://www.uclouvain.be/afepa">www.uclouvain.be/afepa</a>	Access based on application
--	---	-----------------------------

### Non university Bachelors

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

Diploma	Access	Remarks
BA en agronomie (techniques et gestion agricoles) - EPS - crédits supplémentaires entre 30 et 45	Les enseignements supplémentaires éventuels peuvent être consultés dans <a href="#">le module complémentaire</a> .	Type court
BA en agronomie (toutes orientations) - HE - crédits supplémentaires entre 30 et 45		
BA en chimie (biochimie, biotechnologie, chimie appliquée) - EPS - crédits supplémentaires entre 30 et 45		
BA en chimie (biochimie, biotechnologie, chimie appliquée, environnement) - HE - crédits supplémentaires entre 30 et 45		

### Holders of a 2nd cycle University degree

Diploma	Special Requirements	Access	Remarks
<b>"Licenciés"</b>			

#### Masters

Tout grade de master en sciences sociales, agronomiques, économiques, géographiques et/ou environnementales	voir <a href="http://www.uclouvain.be/afepa">www.uclouvain.be/afepa</a>	Access based on application
---	---	-----------------------------

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

Aucune passerelle dans le cas de ce master.

### 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.

### Admission and Enrolment Procedures for general registration

Tout étudiant postulant à ce master est invité à consulter les pages suivantes <https://afepa.eu> pour connaître les dates limites d'inscription à ce programme interuniversitaire.

**Pour MISSOL :**

*En complément à l'information générale reprise ci-dessus, vous devez remplir les conditions supplémentaires suivantes :*

- 1. Ne pas avoir échoué plus d'une fois durant le parcours d'un programme au sein d'une même filière d'étude,*
- 2. Ne pas avoir obtenu (toutes années confondues) une moyenne inférieure à 12/20.*



## Teaching method

**L'interdisciplinarité** et **l'approche intégrée** sont des dimensions essentielles dans la formation des **bioingénieurs en sciences agronomiques**.

Ces dimensions sont soutenues par :

- l'offre d'enseignements organisés par d'autres Facultés ;
- l'offre d'enseignements en anglais;
- le regroupement d'activités de formation : exercices intégrés, projet intégré, analyses de situations réelles, mises en situation ;
- la perception, l'analyse, le diagnostic et la proposition de cahiers de charges (gestion, conception de nouveaux procédés...) intégrant divers types d'outils (observations de terrain, analyses de laboratoire, bases de données, biométrie, modélisation, simulation...) et diverses échelles d'espace (du moléculaire à la parcelle et à l'exploitation, de la région agricole au sous-continent, et au-delà) et de temps ;
- l'implication d'équipes d'enseignants de compétences et d'expériences complémentaires ;
- la formation et la stimulation au travail en équipe d'étudiants intégrant le développement d'une véritable capacité autonome de travail intellectuel;
- la possibilité de réaliser un stage d'insertion socio-professionnelle.

**Une panoplie d'outils didactiques est mise à la disposition des étudiants.**

Les laboratoires décentralisés à Michamps et à Chimay et le Centre Alphonse de Marbaix à Corroy-le-Grand où se cotoient des écosystèmes agricoles et naturels.

Des laboratoires de chimie et de physiologie équipés avec des instruments de pointe accueillent les étudiants dans le cadre de travaux pratiques ou de leur mémoire de fin d'études. Plusieurs salles didactiques équipées d'ordinateurs et de logiciels récents permettent à tout moment de travailler sur des outils de gestion de données et de modélisation.

La formation à la recherche et par la recherche, indispensable à l'éveil conceptuel et innovant et à l'apprentissage de la rigueur, est soutenue par diverses activités de formation :

- la réalisation d'un mémoire de fin d'études;
- la participation à des séminaires disciplinaires assurant un contact direct avec des jeunes chercheurs oeuvrant dans le domaine des sciences agronomiques (biologie appliquée et productions agricoles et socio-économie rurale) ;
- la présentation de séminaires par les étudiants au sein du(des) groupe(s) de recherche d'accueil et de réalisation du mémoire.

L'application des compétences, des connaissances et des techniques acquises, et leur utilisation intégrée, est prise en compte dans la réalisation d'un projet intégré en sciences agronomiques. Cette activité importante d'apprentissage complète la réalisation du mémoire auquel la Faculté souhaite conserver le caractère prédominant de formation à la recherche.

En raison de la proximité entre enseignement et recherche, le développement de nouveaux outils et de nouvelles approches fait l'objet de formations avancées dès le second cycle et donc au sein même de ce programme de master (p.ex. la lutte intégrée en protection des cultures, la bioinformatique, l'aide à la décision...).

## 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".**

Students are assessed according to the activities in the programme : this can take the form of written and/or oral examinations as well as individual and/or group work.

Further details about how the assessment is done can be found in the course specifications.

## Mobility and/or Internationalisation outlook

The master in Agriculture and Bio-industries is an interuniversity master.

Students registered in this Master's programme have the possibility to spend a study or research period at other institutions and may be able to integrate their academic credits earned into their academic curriculum at one of these partner institutions.

This master can lead to the issuance of the Master in Agriculture and Bio-industries together with the issuance of a second master from a partner university provided that a sufficient number of credits have been acquired in this university.

The master in Agriculture and Bio-industries develops:

- the ability to analyze agronomic problems
- the ability to understand different processes
- the ability to manage projects with other specialists.

At the end of this master, you will be able to find relevant, innovative and scientific solutions to help the development of products, process systems or services in this area of specialization.

Two professional focus are possible:

- Professional focus in soil sciences ([MISOL](#))
- Professional focus: Agricultural, Food and Environmental Analysis ([AFEPA](#))

## Possible trainings at the end of the programme

---

/\* /\*]]>\*/

Possible trainings at the end of the programme

Successful completion of this Master's programme enables direct entry to other training programmes in the second and third cycles.

- Advanced Masters: the Advanced Masters in the field authorized by regulations in addition to those established by the University Development Commission (ARES-CCD) in the same field.
- Doctoral programmes: doctorate in Agronomic Science and Biological Engineering and other fields and universities subject to admission.

## Contacts

---

For more information about this programme, please contact Professor Bruno Henry de Frahan at - [bruno.henrydefrahan@uclouvain.be](mailto:bruno.henrydefrahan@uclouvain.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

1348 Louvain-la-Neuve

Tel: [+32 \(0\) 10 47 37 19](tel:+32210473719) - Fax: [+32 \(0\) 10 47 47 45](tel:+32210474745)

Website

<http://www.uclouvain.be/agro>

Mandate(s)

- Dean : Philippe Baret
- Administrative director : Christine Denayer

Commission(s) of programme

- Commission de programme - Master Bioingénieur-Sciences agronomiques ([BIRA](#))
- Commission de programme - Master Bioingénieur-Chimie et bioindustries ([BIRC](#))
- Commission de programme - Master Bioingénieur-Sciences & technologies de l'environnement ([BIRE](#))
- Commission de programme - Bachelier en sciences de l'ingénieur, orientation bioingénieur ([CBIR](#))
- Commission de programme interfacultaire en Sciences et gestion de l'environnement ([ENVI](#))
- Fermes universitaires de Louvain ([FERM](#))

Academic supervisor: [Frédéric Gaspart](#)

Other academic Supervisor(s)

- [Mathieu Javaux](#)
- [Pierre Defourny](#)

Jury

- [Charles Bielders](#)
- [Quentin Ponette](#)

Useful Contact(s)

- Conseiller aux études: [Eric Gaigneaux](#)

