SAIV2M
2019 - 2020

Master [120] in Agriculture and Bio-industries

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: Faculté des bioingénieurs (AGRO)
Programme acronym: saiv2m - Francophone Certification Framework: 7

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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 interuniversity program is an international master's degree initiated by Sorbonne Universités, which involves four universities in North Africa, West Africa, the Indian Ocean and South-East Asia. The program allows you to follow a year of classes at another university. If you are selected, you can benefit from a grant Erasmus +

If you are selected, your participation in the AFEPA (Agricultural, Food and Environmental Policy Analysis) interuniversity program may lead to the award of a Master's degree in agronomic sciences and life-related industries in addition to the awarding of a second master's degree from a partner university. a sufficient number of credits have been acquired in this university. For more information, see the section "Mobility" and https://afepa.eu.

STRUCTURE OF THE PROGRAM MISOL

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

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.

This Master’s programme is also jointly organised with three other European main partner universities: the Rheinische-Friedrich-Wilhelms Universität Bonn (UBonn) in Germany, the Swedish University of Agricultural Sciences (SLU) in Sweden, and the Università Cattolica del Sacro Cuore (UCSC) in Milano, Italy. The partnership also includes three associated partners: the Pontifica Universidad Catolica (PUC) in Chile, the University of Alberta (UAlberta) in Canada and the Universitat Politècnica de Catalunya (UPC) in Spain where some ECTS credits can also be earned. These seven partner universities are recognised worldwide for the quality of their educational programme and scientific achievements in the AFEPA field. They together organise the inter-university AFEPA programme (see www.afepa.eu).

If selected, your participation in this inter-university AFEPAP programme can lead to the Master’s degree in Agriculture and Bio-industries of UCL jointly to the equivalent Master’s degree of one of the other three main partner universities if a minimum of 48 ECTS credits are earned at that main partner university. To know more about it, see the admission, mobility and Master’s degree tabs at www.afepa.eu.

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 AFEPAR
- la finalité spécialisée (dont le contenu varie en cas de participation au programme AFEPAR
- 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 AFEPAR (Agricultural, Food and Environmental Policy Analysis) fait également l'objet d'une sélection.

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

SAIV2M Detailed programme
Programme by subject

**CORE COURSES [40.0]**

Le tronc commun et la finalité spécialisée sont constitués de cours obligatoires pour tous les étudiants ce programme. Les étudiants inscrits au programme Erasmus Mundus AFEPA choisiront obligatoirement le tronc commun et la finalité spécialisée propres à ce programme.

<table>
<thead>
<tr>
<th>Mandatory</th>
<th>Optional</th>
</tr>
</thead>
<tbody>
<tr>
<td>Courses not taught during 2019-2020</td>
<td>Periodic courses not taught during 2019-2020</td>
</tr>
<tr>
<td>Periodic courses taught during 2019-2020</td>
<td>Activity with requisites</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Year</th>
<th>Course Code</th>
<th>Course Title</th>
<th>Year Credits</th>
<th>Credits</th>
<th>Prerequisite</th>
<th>Year</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>LSAIV2200</td>
<td>Masters thesis</td>
<td></td>
<td>27</td>
<td></td>
<td>X</td>
<td>12</td>
</tr>
<tr>
<td></td>
<td>LBIRA2210</td>
<td>Master thesis’ accompanying seminar</td>
<td></td>
<td>3</td>
<td></td>
<td>1q</td>
<td>30h</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Year</th>
<th>Course Code</th>
<th>Course Title</th>
<th>Year Credits</th>
<th>Credits</th>
<th>Prerequisite</th>
<th>Year</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>LBRAI2218</td>
<td>Special Topics in Agricultural Economics</td>
<td></td>
<td>5</td>
<td></td>
<td>1q</td>
<td>30h +22.5h</td>
</tr>
</tbody>
</table>

- Free choice of courses for 5 credits.

**Activité pour la finalité Sciences du sol (MISSOL)**

- Free choice of courses for 10 credits.
### LIST OF FOCUSES

- Master [120] in Agriculture and Bio-industries, Professional focus
- Master [120] in Agriculture and Bio-industries, Professional

### MASTER [120] IN AGRICULTURE AND BIO-INDUSTRIES, PROFESSIONAL FOCUS [30.0]

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Teacher(s)</th>
<th>Credits</th>
<th>Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>LBRAI2208</td>
<td>Firms and Markets : Strategic Analysis</td>
<td>Frédéric Gaspart</td>
<td>5</td>
<td>1q</td>
</tr>
<tr>
<td>LECON2353</td>
<td>Labour Productivity</td>
<td>Vincent Vandenberghe</td>
<td>5</td>
<td>2q</td>
</tr>
<tr>
<td>LECON2411</td>
<td>Norms and Public Intervention</td>
<td>François Maniquet</td>
<td>5</td>
<td>2q</td>
</tr>
<tr>
<td>LECON2607</td>
<td>Public Economics</td>
<td>Jean Hindriks</td>
<td>5</td>
<td>2q</td>
</tr>
<tr>
<td>LECGE1316</td>
<td>Econometrics</td>
<td>Michel Beine (compensates Muriel Dejemeppe)</td>
<td>5</td>
<td>1q</td>
</tr>
<tr>
<td>LECON2033</td>
<td>Applied econometrics: Microeconometrics</td>
<td>Bertrand Verheyden (compensates Muriel Dejemeppe)</td>
<td>5</td>
<td>2q</td>
</tr>
<tr>
<td>LINGE1221</td>
<td>Econometrics</td>
<td>Sébastien Van Bellegem</td>
<td>5</td>
<td>2q</td>
</tr>
<tr>
<td>LECON2041</td>
<td>International Trade</td>
<td>Gonzague Vannooenberghe</td>
<td>5</td>
<td>2q</td>
</tr>
<tr>
<td>LECON2865</td>
<td>Trade Policy and International Cooperation - UNamur</td>
<td></td>
<td>5</td>
<td>2q</td>
</tr>
</tbody>
</table>

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

**Year**

1 2
### MASTER [120] IN AGRICULTURE AND BIO-INDUSTRIES, PROFESSIONAL [30.0]

<table>
<thead>
<tr>
<th>Year</th>
<th>Course Code</th>
<th>Course Title</th>
<th>Lecturer(s)</th>
<th>Credits</th>
<th>Periodicity</th>
<th>Requisites</th>
</tr>
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<tbody>
<tr>
<td>1</td>
<td>LBIRE2101</td>
<td>Statistical analysis of spatial and temporal data</td>
<td>Patrick Bogaert</td>
<td>3</td>
<td>2q</td>
<td>x x</td>
</tr>
<tr>
<td></td>
<td>LBIRE2102</td>
<td>Applied Geomatic</td>
<td>Pierre Defourny</td>
<td>4</td>
<td>1q</td>
<td>x x</td>
</tr>
<tr>
<td></td>
<td>LBIRE2104</td>
<td>Applied soil sciences</td>
<td>Yannick Agnan Pierre Delmelle (coord.)</td>
<td>5</td>
<td>2q</td>
<td>x x</td>
</tr>
<tr>
<td></td>
<td>LBIRE2218</td>
<td>Séminaire professionnel en gestion des ressources en eau et sol</td>
<td>Charles Bielders (coord.) Marnik Vanclooster</td>
<td>2</td>
<td>1q</td>
<td>x x</td>
</tr>
<tr>
<td>2</td>
<td>LBRES2102</td>
<td>Engineering of the water and the pollutants in grounds and groundwaters</td>
<td>Sébastien Lambot (coord.) Marnik Vanclooster</td>
<td>5</td>
<td>2q</td>
<td>x x</td>
</tr>
<tr>
<td></td>
<td>LBRES2103</td>
<td>Soil physics applied to Agronomy and Environment</td>
<td>Charles Bielders (coord.) Mathieu Javaux</td>
<td>4</td>
<td>1q</td>
<td>x x</td>
</tr>
<tr>
<td></td>
<td>LBRES2105</td>
<td>Soil erosion and conservation</td>
<td>Charles Bielders</td>
<td>4</td>
<td>2q</td>
<td>x x</td>
</tr>
<tr>
<td></td>
<td>LBRES2203</td>
<td>Soil management and planning in warm regions</td>
<td>Charles Bielders (coord.) Bruno Delvaux</td>
<td>3</td>
<td>2q</td>
<td>x x</td>
</tr>
</tbody>
</table>
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

> Agricultural, Food and Environmental Policy Analysis [ en-prog-2019-saiv2m-lbira923o ]
> Courses AFEPA to be chosen amongst the following list [ en-prog-2019-saiv2m-lbira935o ]
> Courses MISSOL to be chosen amongst the following list [ en-prog-2019-saiv2m-lsaiv936o ]

AGRICULTURAL, FOOD AND ENVIRONMENTAL POLICY ANALYSIS [30.0]

- Mandatory
- Δ Courses not taught during 2019-2020
- § Optional
- △ Periodic courses not taught during 2019-2020
- ○ Activity with requisites

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

<table>
<thead>
<tr>
<th>Year</th>
<th>1</th>
<th>2</th>
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○ Contenu:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Instructor(s)</th>
<th>Credits</th>
<th>Periods</th>
</tr>
</thead>
<tbody>
<tr>
<td>LBIRA2104B</td>
<td>Decision Tools</td>
<td>Jean-Marie Bouguiaux, Frédéric Gaspart, Benoît Georges</td>
<td>20h</td>
<td>2 Credits</td>
</tr>
<tr>
<td>LBIRA2105</td>
<td>Agricultural and rural policies</td>
<td>Bruno Henry de Frahan</td>
<td>30h</td>
<td>3 Credits</td>
</tr>
<tr>
<td>LBRAI2213</td>
<td>Evaluation of Agricultural Policies</td>
<td>Goedele Van den Broeck</td>
<td>30h+8h</td>
<td>4 Credits</td>
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</tbody>
</table>

Courses to be chosen for 21 credits amongst the following list:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Instructor(s)</th>
<th>Credits</th>
<th>Periods</th>
</tr>
</thead>
<tbody>
<tr>
<td>LIBE2109</td>
<td>Agrarian systems and farm</td>
<td>Pierre Berlin</td>
<td>45h+7.5h</td>
<td>5 Credits</td>
</tr>
<tr>
<td>LBRAI2210</td>
<td>Microeconomics of Development</td>
<td>Frédéric Gaspart</td>
<td>30h</td>
<td>3 Credits</td>
</tr>
<tr>
<td>LBRAI2212</td>
<td>Economics of Rural Development</td>
<td>Frédéric Gaspart (coord.) Goedele Van den Broeck</td>
<td>30h</td>
<td>3 Credits</td>
</tr>
<tr>
<td>LECON2312</td>
<td>Macroeconomics of the development</td>
<td>Frédéric Docquier</td>
<td>30h</td>
<td>5 Credits</td>
</tr>
<tr>
<td>LECON2314</td>
<td>Economic Geography</td>
<td>Joseph Gomes</td>
<td>30h</td>
<td>5 Credits</td>
</tr>
<tr>
<td>LGEO2130</td>
<td>Fundamentals of geographic and environmental modelling</td>
<td>Eric Deleersnijder, Jean-François Remacle (compensates Eric Deleersnijder), Sophie Vanwanbeke</td>
<td>30h+30h</td>
<td>5 Credits</td>
</tr>
<tr>
<td>LGEO1321</td>
<td>Human and Economic geography 1</td>
<td>Patrick Meyroidt, Sophie Vanwanbeke</td>
<td>25h+25h</td>
<td>4 Credits</td>
</tr>
</tbody>
</table>
**COURSES AFEPA TO BE CHOSEN AMONGST THE FOLLOWING LIST**

<table>
<thead>
<tr>
<th>Mandatory</th>
<th>Optional</th>
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</table>

- Courses not taught during 2019-2020
- Periodic courses taught during 2019-2020
- Activity with requisites

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

For the internship, credits may vary. Please contact the programme coordinator.

### Year 1

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Lecturers</th>
<th>Duration</th>
<th>Credits</th>
<th>Requisites</th>
</tr>
</thead>
<tbody>
<tr>
<td>LBIRA2104A</td>
<td>Farm Management</td>
<td>Jean-Marie Bouquiaux, Frédéric Gaspart, Benoît Georges</td>
<td>25h+7.5h</td>
<td>3 Credits</td>
<td>2q</td>
</tr>
<tr>
<td>LBIRA2104B</td>
<td>Decision Tools</td>
<td>Jean-Marie Bouquiaux, Frédéric Gaspart, Benoît Georges</td>
<td>20h</td>
<td>2 Credits</td>
<td>2q</td>
</tr>
<tr>
<td>LBIRA2105</td>
<td>Agricultural and rural policies</td>
<td>Bruno Henry de Frahan</td>
<td>30h</td>
<td>3 Credits</td>
<td>1q</td>
</tr>
<tr>
<td>LBIRA2109</td>
<td>Agrarian systems and farm</td>
<td>Pierre Berlin</td>
<td>45h+7.5h</td>
<td>5 Credits</td>
<td>1q</td>
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<tr>
<td>LBIRE2102B</td>
<td>APPLIED GEOMATICS</td>
<td>Pierre Defourny</td>
<td>22.5h +7.5h</td>
<td>3 Credits</td>
<td>1q</td>
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<tr>
<td>LBRAI2210</td>
<td>Microeconomics of Development</td>
<td>Frédéric Gaspart</td>
<td>30h</td>
<td>3 Credits</td>
<td>1q</td>
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<tr>
<td>LBRAI2212</td>
<td>Economics of Rural Development</td>
<td>Frédéric Gaspart (coord.), Goedele Van den Broeck</td>
<td>30h</td>
<td>3 Credits</td>
<td>1q</td>
</tr>
<tr>
<td>LBRAI2213</td>
<td>Evaluation of Agricultural Policies</td>
<td>Goedele Van den Broeck</td>
<td>30h+8h</td>
<td>4 Credits</td>
<td>2q</td>
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<tr>
<td>LECO2031</td>
<td>Applied Econometrics : Time Series</td>
<td>Vera Jotanovic</td>
<td>30h+12h</td>
<td>5 Credits</td>
<td>1q</td>
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<tr>
<td>LECO2033</td>
<td>Applied econometrics: Microeconometrics</td>
<td>Bertrand Verheyden (compensates Muriel Dejemeppe)</td>
<td>30h+12h</td>
<td>5 Credits</td>
<td>1q</td>
</tr>
<tr>
<td>LECO2312</td>
<td>Macroeconomics of the development</td>
<td>Frédéric Docquier</td>
<td>30h</td>
<td>5 Credits</td>
<td>2q</td>
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<tr>
<td>LECO2314</td>
<td>Economic Geography</td>
<td>Joseph Gomes</td>
<td>30h</td>
<td>5 Credits</td>
<td>2q</td>
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<tr>
<td>LECO2352</td>
<td>Methods for the evaluation of public policies</td>
<td>William Parienté</td>
<td>30h</td>
<td>5 Credits</td>
<td>1q</td>
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<tr>
<td>LECO2607</td>
<td>Public Economics</td>
<td>Jean Hindriks</td>
<td>30h</td>
<td>5 Credits</td>
<td>2q</td>
</tr>
<tr>
<td>LECO2865</td>
<td>Trade Policy and International Cooperation - UNamur</td>
<td></td>
<td>30h</td>
<td>5 Credits</td>
<td>2q</td>
</tr>
<tr>
<td>LBRAI2208</td>
<td>Firms and Markets : Strategic Analysis</td>
<td>Frédéric Gaspart</td>
<td>30h</td>
<td>5 Credits</td>
<td>1q</td>
</tr>
<tr>
<td>LGEO2130</td>
<td>Fundamentals of geographic and environmental modelling</td>
<td>Eric Deleersnijder, Jean-François Remacle (compensates Eric Deleersnijder), Sophie Vanwanheke</td>
<td>30h+30h</td>
<td>5 Credits</td>
<td>2q</td>
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<td>LBIR2000C</td>
<td>Stage d'insertion socio-professionnelle : part C</td>
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<td>2q</td>
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<tr>
<td>LBRES2204</td>
<td>Integrated water management of water resources</td>
<td>François Jonard, Marnik Vanclooster (coord.)</td>
<td>30h +22.5h</td>
<td>5 Credits</td>
<td>1q</td>
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<tr>
<td>LBIRE2204</td>
<td>Territorial diagnostic and decision aid</td>
<td>Pierre Defourny</td>
<td>22.5h</td>
<td>3 Credits</td>
<td>2q</td>
</tr>
</tbody>
</table>
### COURSES MISSOL TO BE CHOSEN AMONGST THE FOLLOWING LIST

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Instructor(s)</th>
<th>Credits</th>
<th>Hours</th>
<th>Period</th>
</tr>
</thead>
<tbody>
<tr>
<td>LANGLE2480</td>
<td>English Communication Skills for Bioengineers</td>
<td>Ahmed Adriouche, Dominique François, Sandrine Meiiaen, Charlotte Peters, Adrien Pham, Anne-Julie Toubeau</td>
<td>2 Credits</td>
<td>30h</td>
<td>2q</td>
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<tr>
<td>LBIR1328</td>
<td>Climatology and hydrology applied to agronomy and the environment</td>
<td>Charles Bielders, Hugues Goossen, Marik Van clooster (coord.)</td>
<td>6 Credits</td>
<td>45h+22.5h</td>
<td>1q</td>
</tr>
<tr>
<td>LBIR1336</td>
<td>Sciences du sol et excursions intégrées</td>
<td>Yannick Agran (coord.), Richard Lambert, Caroline Vincke</td>
<td>5 Credits</td>
<td>30h+37.5h</td>
<td>2q</td>
</tr>
<tr>
<td>LBIRE2105</td>
<td>Water and soil quality’s Evaluation</td>
<td>Henri Halen, Xavier Rollin (coord.)</td>
<td>3 Credits</td>
<td>30h+7.5h</td>
<td>2q</td>
</tr>
<tr>
<td>LBIRE2204</td>
<td>Territorial diagnostic and decision aid</td>
<td>Pierre Defourny</td>
<td>3 Credits</td>
<td>22.5h</td>
<td>2q</td>
</tr>
<tr>
<td>LBIRE2205</td>
<td>Decision Tools and Project Management</td>
<td>Olivier Cogels, Frédéric Gaspart (coord.)</td>
<td>3 Credits</td>
<td>30h+7.5h</td>
<td>1q</td>
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<tr>
<td>LBIRE2217</td>
<td>Projet intégré et excursions en ressources en eau et en sol</td>
<td>Charles Bielders, Mathieu Javaux, Marik Van clooster (coord.)</td>
<td>9 Credits</td>
<td>50h+40h</td>
<td>1q</td>
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<tr>
<td>LBRAI2210</td>
<td>Microeconomics of Development</td>
<td>Frédéric Gaspart</td>
<td>3 Credits</td>
<td>30h</td>
<td>1q</td>
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<tr>
<td>LBRES2104</td>
<td>IRRIGATION AND DRAINAGE</td>
<td>Mathieu Javaux</td>
<td>4 Credits</td>
<td>20h+22.5h</td>
<td>2q</td>
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<tr>
<td>LBRES2204</td>
<td>Integrated water management of water resources</td>
<td>François Jonard, Marik Van clooster (coord.)</td>
<td>5 Credits</td>
<td>30h+22.5h</td>
<td>1q</td>
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<tr>
<td>LBRTE2101</td>
<td>Aquatic and soil biological and physical chemistry</td>
<td>Pierre Delmelle, Patrick Gerin (coord.)</td>
<td>5 Credits</td>
<td>37.5h+15h</td>
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<tr>
<td>LECON2312</td>
<td>Macroeconomics of the development</td>
<td>Frédéric Dorquier</td>
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<tr>
<td>LGCI2073</td>
<td>Hydrogeology and Geoenvironment</td>
<td>Pierre-Yves Bolly</td>
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<tr>
<td>LGEO2120</td>
<td>Applied geomorphology</td>
<td>Bas van Weseamel</td>
<td>5 Credits</td>
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<tr>
<td>LSTAT2110A</td>
<td>Analyse des données</td>
<td>Johan Segers</td>
<td>3 Credits</td>
<td>15h+7.5h</td>
<td>1q</td>
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<tr>
<td>LBIRE2106</td>
<td>Topometry and photogrammetry</td>
<td>Pierre Defourny, François Jonard, Sébastien Lambot (coord.)</td>
<td>4 Credits</td>
<td>22.5h+22.5h</td>
<td>2q</td>
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<tr>
<td>LBRES2206</td>
<td>Advanced Hydrology for Engineers</td>
<td>Mathieu Javaux</td>
<td>3 Credits</td>
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<tr>
<td>LBIRA2105</td>
<td>Agricultural and rural policies</td>
<td>Bruno Henry de Frahan</td>
<td>3 Credits</td>
<td>30h</td>
<td>1q</td>
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<tr>
<td>LBIR1362</td>
<td>Environmental Economics</td>
<td>Frédéric Gaspart</td>
<td>3 Credits</td>
<td>30h+7.5h</td>
<td>2q</td>
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<tr>
<td>LBIRA2109</td>
<td>Agrarian systems and farm</td>
<td>Pierre Bertin</td>
<td>5 Credits</td>
<td>45h+7.5h</td>
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<tr>
<td>LBRAI2212</td>
<td>Economics of Rural Development</td>
<td>Frédéric Gaspart, Goedele Van den Broek (coord.)</td>
<td>3 Credits</td>
<td>30h</td>
<td>1q</td>
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<tr>
<td>LGEO1321</td>
<td>Human and Economic geography</td>
<td>Patrick Meyroid, Sophie Vanwambek</td>
<td>4 Credits</td>
<td>25h+25h</td>
<td>2q</td>
</tr>
<tr>
<td>LSGED2210</td>
<td>Hydrology of Tropical areas</td>
<td>François Jonard, Marik Van clooster (coord.)</td>
<td>2 Credits</td>
<td>24h</td>
<td>2q</td>
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<tr>
<td>LSGED2220</td>
<td>Environmental modelling for Developing Countries</td>
<td>Mathieu Javaux</td>
<td>2 Credits</td>
<td>24h</td>
<td>2q</td>
</tr>
</tbody>
</table>

Note: Periods: 1q = 1st quarter, 2q = 2nd quarter.
<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Teachers</th>
<th>Credits</th>
<th>Period</th>
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<tr>
<td>LENV2005</td>
<td>Changements climatiques: impacts et solutions</td>
<td>Pierre Delmelle Philippe Marbaix Jean-Pascal van Ypersele de Strihou (coord.)</td>
<td>30h</td>
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Year

<table>
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<tr>
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<th>1</th>
<th>2</th>
</tr>
</thead>
<tbody>
<tr>
<td>x</td>
<td>x</td>
<td>x</td>
</tr>
</tbody>
</table>
Course prerequisites

A document entitled en-prerequis-2019-saiv2m.pdf specifies the activities (course units - CU) with one or more pre-requisite(s) within the study programme, that is the CU whose learning outcomes must have been certified and for which the credits must have been granted by the jury before the student is authorised to sign up for that activity.

These activities are identified in the study programme: their title is followed by a yellow square.

As the prerequisites are a requirement of enrolment, there are none within a year of a course.

The prerequisites are defined for the CUs for different years and therefore influence the order in which the student can enrol in the programme’s CUs.

In addition, when the panel validates a student’s individual programme at the beginning of the year, it ensures the consistency of the individual programme:

- It can change a prerequisite into a corequisite within a single year (to allow studies to be continued with an adequate annual load);
- It can require the student to combine enrolment in two separate CUs it considers necessary for educational purposes.

For more information, please consult regulation of studies and exams.

The programme's courses and learning outcomes

For each UCLouvain training programme, a reference framework of learning outcomes specifies the competences expected of every graduate on completion of the programme. You can see the contribution of each teaching unit to the programme’s reference framework of learning outcomes in the document "In which teaching units are the competences and learning outcomes in the programme’s reference framework developed and mastered by the student?"

The document is available by clicking this link after being authenticated with UCL account.
Admission

General and specific admission requirements for this program 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
• Specific Admission Requirements
• 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
• Access on the file
• Admission and Enrolment Procedures for general registration

Specific Admission 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

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

<table>
<thead>
<tr>
<th>Diploma</th>
<th>Special Requirements</th>
<th>Access</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>UCLouvain Bachelors</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bachelier en sciences géographiques</td>
<td>voir <a href="http://www.uclouvain.be/afepa">www.uclouvain.be/afepa</a></td>
<td>Based on application: accepted, conditional on further training, or refusal</td>
<td></td>
</tr>
<tr>
<td>Bachelier en sciences économiques</td>
<td>voir <a href="http://www.uclouvain.be/afepa">www.uclouvain.be/afepa</a></td>
<td>Based on application: accepted, conditional on further training, or refusal</td>
<td></td>
</tr>
<tr>
<td>BIR1BA</td>
<td>voir <a href="http://www.uclouvain.be/afepa">www.uclouvain.be/afepa</a></td>
<td>Based on application: accepted, conditional on further training, or refusal</td>
<td></td>
</tr>
<tr>
<td>Others Bachelors of the French speaking Community of Belgium</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bachelier en sciences géographiques et/ou environnementales</td>
<td>voir <a href="http://www.uclouvain.be/afepa">www.uclouvain.be/afepa</a></td>
<td>Based on application: accepted, conditional on further training, or refusal</td>
<td></td>
</tr>
<tr>
<td>Bachelier en sciences sociales et/ou économiques</td>
<td>voir <a href="http://www.uclouvain.be/afepa">www.uclouvain.be/afepa</a></td>
<td>Based on application: accepted, conditional on further training, or refusal</td>
<td></td>
</tr>
</tbody>
</table>
Bachelier en sciences de l'ingénieur, orientation bioingénieur

Bachelors of the Dutch speaking Community of Belgium

Tout grade de bachelier en sciences sociales, économiques, agronomiques, géographiques et/ou environnementales

Foreign Bachelors

Tout grade de bachelier en sciences sociales, économiques, agronomiques, géographiques et/ou environnementales

Non university Bachelors

> Find out more about links to the university

<table>
<thead>
<tr>
<th>Diploma</th>
<th>Access</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>BA en agronomie (techniques et gestion agricoles) - EPS - crédits supplémentaires entre 30 et 45</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BA en agronomie (toutes orientations) - HE - crédits supplémentaires entre 30 et 45</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BA en chimie (biochimie, biotechnologie, chimie appliquée) - EPS - crédits supplémentaires entre 30 et 45</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BA en chimie (biochimie, biotechnologie, chimie appliquée, environnement) - HE - crédits supplémentaires entre 30 et 45</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Les enseignements supplémentaires éventuels peuvent être consultés dans le module complémentaire.

Type court

Holders of a 2nd cycle University degree

"Licenciés"

Masters

Tout grade de master en sciences sociales, agronomiques, économiques, géographiques et/ou environnementales

Based on application: accepted, conditional on further training, or refusal

Holdes of a non-University 2nd cycle degree

Aucune passerelle dans le cas de ce master.

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.

Access on the file

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

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.
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 cototent 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 chercheurs ouvrant 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(s) 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

/* */]]>/*

On a case by case basis, subject to a bilateral exchange agreement, students registered in this Master’s programme have the possibility to spend a short 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. Currently, bilateral exchange agreements exist with the Rheinishe-Friedrich-Wilhelms Universität Bonn (UBonn) in Germany, the Swedish University of Agricultural Sciences (SLU) in Sweden, the Università Cattolica del Sacro Cuore (UCSC) in Milano, Italy, the Pontifica Universidad Catolica (PUC) in Chile, the Universitat Politècnica de Catalunya (UPC) in Spain and, soon, the University of Alberta (UAlberta) in Canada.

If selected to the inter-university AFEPA programme, students generally spend one academic year at UCL and a second academic year at one of the main partner universities: UBonn, SLU and UCSC. On a case by case basis, subject to a bilateral exchange agreement, students can also earn a limited number of ECTS credits at associated partner universities: PUC, UPC and UAlberta (see www.afepa.eu).

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

Curriculum Management

Faculty

Structure entity

Denomination

Sector

Acronym

Postal address

Web site

Mandate(s)

• Doyen : Philippe Baret
• Directeur administratif de faculté : 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 - Bachelor en sciences de l'ingénieur, orientation bioingénieur (CBIR)
• Commission de programme interfacultaire en Sciences et gestion de l'environnement (ENVI)

Academic supervisor: Frédéric Gaspart

Other academic Supervisor(s)

• Mathieu Javaux

Jury

• Charles Bielders
• Quentin Ponette

Usefull Contact(s)

• Conseiller aux études: eric.gaigneau@uclouvain.be  Patrick Bogaert (Tel: +32 10 48 37 19 )