

At Louvain-la-Neuve - 120 credits - 2 years - Day schedule - In frenchDissertation/Graduation Project : **YES** - Internship : **optional**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: **bire2m** - Francophone Certification Framework: 7**Table of contents**

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BIRE2M - Introduction

Introduction

BIRE2M - Teaching profile

Learning outcomes

Master in Environmental Bioengineering students must endeavour to diagnose and solve complex and original issues in bioengineering through a multidisciplinary approach in order to develop and implement innovative and sustainable solutions.

This Master's programme aims to train experts in the field of management, conservation and the responsible use of natural renewable resources (land and water) as well as natural and man-made ecosystems.

The future bioengineers acquire the knowledge and skills required to become:

- professionals able to tackle and diagnose environmental problems: the management and use of resources (soil, water, plants) and ecosystems, land management;
- scientists able to understand complex processes on different scales, used to multidisciplinary approaches and able to collaborate with other specialists;
- innovators tasked with developing new resource management methods that respect the environment.

Highly versatile and multidisciplinary in character, the course dispensed by the Faculty of Biological, Agricultural and Environmental Engineering focuses on acquiring skills which combine theory and practice to train "bioengineers" mastering a broad base of scientific and technological knowledge and skills allowing them to understand and conceptualise biological, agricultural and environmental systems.

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

1. To explore an integrated body of knowledge (knowledge, methods and techniques, models and processes) in natural and human sciences which serves as the foundation from which to operate with expertise in the field of environmental science and technology.

1.1 To build an advanced knowledge base in the field of environmental science and technologies and more specifically in the following disciplines[1].

- Soil and water sciences and quality
- Ecology
- Geomatics applied to the environment
- Analysis of natural and agrarian systems
- Statistics and data analysis

1.2 To build highly specialised (cutting-edge) scientific knowledge in one of the [2] following bioengineering specialisations:

- Environmental technology: water-soil-earth
- Land management
- Water and land resources

- Information analysis and management in biological engineering

1.3 To master procedural skills in conducting experiments[3] in a controlled or natural environment, and in the observation and monitoring of natural and man-made systems at different scales using specific techniques related to their choice of specialisation.

1.4 To apply their knowledge critically to tackle a complex environmental problem, by incorporating processes at different scales ranging from the mineral and living organism scale, to landscape and biosphere.

1.5 To apply multiple strands of knowledge to resolve a multidisciplinary environmental problem in order to develop relevant and innovative solutions.

[1] Refers to the choice of the Master (core subjects and professional focus). The knowledge of some of these disciplines will have been partially acquired in the Bachelor's degree (in the advanced minor).

[2] Refers to the option / module choice in the Master.

[3] Refers to mastering all the laboratory and field techniques used for the characterisation or monitoring of a system.

2. To explore an integrated body of "engineering and management knowledge" which serves as the foundation from which to operate with expertise in the field of environmental sciences.

2.1 To build an advanced knowledge base (e.g.: concepts, laws, technologies) and tools (e.g. modelling, programming) in engineering sciences:

- Geomatics applied to the environment
 - Hydrology
 - Applied soil sciences
 - Topometry and photogrammetry
 - Ecological and environmental diagnosis
 - Environmental statistical data analysis
 - Support for decision-making and project management
- 2.2 To build and master highly specialised knowledge and tools in one of the following bioengineering specialisations:
- Environmental technology: water-soil-earth
 - Land management
 - Water and land resources
 - Information analysis and management in biological engineering

2.3 To master the operational use of specialised tools in engineering sciences (e.g.: systems analysis, statistical analysis, programming, modelling, etc.)(1) :

- Measurement techniques
- Environmental statistical data analysis
- Specific tools in relation to the choice of specialisation

2.4 To activate and apply their knowledge of engineering with a critical mind and using a quantitative approach to tackle a complex problem in the environmental field by incorporating processes at different scales ranging from the mineral and living organism scale, to landscape and biosphere.

2.5 To locate and understand how companies and organisations operate, including the role of the different players, their financial and social realities and responsibilities and the challenges and constraints which characterise their environment.

[1] The tools are explained on the basis of the radioscopie of the programme and courses.

3. To design and execute a research project, implementing an analytical scientific and, if applicable, systematic approach, to further understanding of an original research problem in their field of specialisation, incorporating several disciplines.

This skill set will develop throughout the 5 years. Amongst others it requires the use of a set of skills as described below. These skills correspond in fact to the different stages of the scientific approach.

The majority of these skills are developed in the Bachelor and Master programmes, with differentiation predominately on 3 levels:

- the level of detail and complexity applied to the scientific problem/research studied;
- the degree of innovation shown by the student;
- the degree of autonomy demonstrated by the student throughout the process.

3.1 To summarise the state of knowledge on a complex research problem which relates to their choice of specialisation: to research information, to select and validate its reliability based on the nature of the source of the information and comparing several sources.

3.2 To specify and define the research question.

3.3 To examine the research question using conceptual abstraction and formulate hypotheses.

3.4 To develop and implement a rigorous methodology to answer the research question.

3.5 To master and apply statistical data analysis tools in the context of a complex scientific issue.

3.6 To analyse and interpret the results to produce a substantiated critique on a complex scientific question.

3.7 To demonstrate an ability to summarise and formulate conclusions on a complex scientific question.

3.8 In each of the skills mentioned above, to demonstrate rigour, precision and the critical thinking essential for any scientific method.

3.9 To demonstrate innovation in at least one of the skills mentioned above.

4. To formulate and resolve a complex environmental engineering problem related to new situations presenting a degree of uncertainty. The student will be able to design appropriate, sustainable and innovative solutions through a systematic approach. This problem may be related to the management and use of resources (soil, water, plant) and ecosystems, to land management, to the impact of human activities on the capacity of the environment to provide goods and services to humanity.

4.1 To strategically differentiate the key elements from the less critical elements relating to a complex environmental engineering problem, in order to define and determine the field of action for this problem.

4.2 To identify the knowledge acquired and that to be acquired to resolve the complex environmental engineering problem.

4.3 To analyse a complex environmental engineering problem using a systematic and multidisciplinary approach in order to carry out diagnostics and formulate the specifications.

4.4 To demonstrate an ability for conceptual abstraction and formalisation in analysing and resolving the complex environmental engineering problem.

4.5 To develop scientifically and technologically relevant and innovative solutions, through a multidisciplinary (integration and articulation of knowledge) and quantitative approach, making it possible to develop products, systems, processes or services in the field of environmental sciences and technologies.

4.6 To test solutions and evaluate their impact in relation to an economic, environmental, social and cultural context.

4.7 To formulate concrete and responsible recommendations to encourage sustainable development in relation to the efficient operational and sustainable implementation of the solutions proposed.

5. To design and implement a multidisciplinary project, alone and in a team, with the stakeholders concerned while taking the objectives into account and incorporating the scientific, technical, environmental, economic and human factors.

5.1 To know and understand the principles and factors of group dynamics (including the constructive role of conflict).

5.2 To know and understand the project management process (project cycles): formulation and definition of the project, project management, monitoring and evaluation of the project.

5.3 To situate a multidisciplinary project within its environment and identify the issues, constraints and stakeholders and to clearly define its objectives.

5.4 To plan and develop all the stages of a multidisciplinary project, alone and in a team, and to work together after having allocated the tasks.

5.5 To involve key players at appropriate stages in the process.

5.6 To work within a team and collaborate effectively to achieve common objectives.

5.7 To take and assume the decisions required for the effective project management either alone or in a team in order to achieve the intended objectives.

5.8 To recognise and take into consideration the diversity of opinions and ways of thinking of team members and to manage conflict constructively to work towards a consensual decision.

5.9 To lead a team (demonstrate leadership): to motivate team members, to develop a collaborative climate, to guide them to cooperate in the achievement of a common objective, to manage conflict.

6. To communicate, interact and convince in a professional manner, in French and English at level C1 (Common European Framework of Reference for Languages published by the Council of Europe), both verbally and in writing, adapting to their conversational partners and the context.

6.1 To understand and use scientific articles and advanced technical documents in French and English.

6.2 To communicate information, ideas, solutions and conclusions as well as the knowledge and underlying principles, in a clearly structured, substantiated, concise and comprehensive way (as appropriate) both verbally and in writing according to the standards of communication specific to the context and by adapting their presentation according to the level of expertise of the audience.

6.3 To develop logic diagrams to concisely pose complex global questions.

6.4 To communicate the state of knowledge in a specific field concisely and critically.

6.5 To communicate results and conclusions, and to support a message, in an appropriate manner using scientific tables, graphs and diagrams.

6.6 To communicate effectively and respectfully with various stakeholders, demonstrating listening skills, empathy and assertiveness.

6.7 To argue and convince: to understand the points of view of various stakeholders and present their arguments accordingly.

6.8 To master the IT and technological tools essential for professional communication.

6.9 To learn English to level C1 according to the European Framework.

7. To act critically and responsibly by taking account of sustainable development issues and operating with a humanistic outlook.

7.1 To demonstrate intellectual independence of thought, to examine knowledge and professional practices and trends critically.

7.2 To make decisions and act in society with respect for ethical values and in compliance with laws and conventions.

7.3 To make decisions and act responsibly by factoring in sustainable development values.

7.4 To make decisions and act with respect for humanistic values, cultural openness and solidarity, especially in North–South relations.

7.5 To assume professional responsibilities and act in a managerial capacity vis-à-vis their colleagues.

8. To demonstrate independence and be proactive in acquiring new knowledge and developing new skills in order to adapt to changing or uncertain situations and to grow, to build a professional project within a continuing development approach.

8.1 To manage their work independently: to set priorities, anticipate and plan all the activities in time, including in the face of changing, uncertain or urgent situations.

8.2 To manage stress and frustrations in urgent, changing, inconsistent or uncertain situations.

8.3 To question and know themselves: to undergo self-assessment, by analysing their successes and failures, to identify strengths and weaknesses and their personal performance in relation to the context.

8.4 To grow personally and professionally: to build a professional project in line with their own values and aspirations, to manage their motivation and involvement in bringing the project to fruition, to persevere in complex situations.

8.5 To independently identify and absorb new knowledge and skills essential for learning to understand new contexts quickly.

8.6 To commit to the lifelong learning which will allow them to grow socially and professionally.

Programme structure

This programme comprises a series of activities totalling 120 credits spread over two years worth 60 credits each. It is structured as follows :

- **core subjects programme of 40 credits** (compulsory) with the opportunity to do an internship of 40 days in a company;
- **professional focus programme** 30 credits (compulsory)
- **choice of one option course for 30 credits from four available and its complement(s) of 20 credits to choose amongst 4 possibilities.** The fifth complement called "CPME" is generalist in nature and may be taken to follow on from any option course.

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

> Tronc commun [[en-prog-2018-bire2m-lbire200t.html](#)]

> Professional focus [[en-prog-2018-bire2m-lbire200s](#)]

Options courses

> Environmental Technology: Water, Soil, Air [[en-prog-2018-bire2m-lbire971r.html](#)]

> Environmental Technology : Water, Soil, Air (Option 4E) [[en-prog-2018-bire2m-lbire204o.html](#)]

> Complément à l'option 4E : Technologies environnementales : eau, sol, air [[en-prog-2018-bire2m-lbire214o.html](#)]

> Filière: Aménagement du territoire [[en-prog-2018-bire2m-lbire972r.html](#)]

> Land Use Planning (Option 5E) [[en-prog-2018-bire2m-lbire205o.html](#)]

> Option's complement 5E - Land Use Planning [[en-prog-2018-bire2m-lbire215o.html](#)]

> Option: Water and Soil Resources [[en-prog-2018-bire2m-lbire973r.html](#)]

> Water and Soil Resources (Option 7E) [[en-prog-2018-bire2m-lbire207o.html](#)]

> Option's complement 7E - Water and soil resources [[en-prog-2018-bire2m-lbire217o.html](#)]

> Option: Analysis and Management of Information in Biological Engineering [[en-prog-2018-bire2m-lbire974r.html](#)]

- > Analysis and Management of Information in Biological Engineering (Option 10E - AGI) [[en-prog-2018-bire2m-lbire210o.html](#)]
- > OOption's complement: Analysis and Management of Information in Biological Engineering [[en-prog-2018-bire2m-lbire211o.html](#)]
- > Complément à toutes les options - CPME [[en-prog-2018-bire2m-lbire980r.html](#)]
- > Business Creation [[en-prog-2018-bire2m-lbire250o.html](#)]

BIRE2M Detailed programme

Programme by subject

CORE COURSES [40.0]

● Mandatory

△ Courses not taught during 2018-2019

⊕ Periodic courses taught during 2018-2019

❖ Optional

○ Periodic courses not taught during 2018-2019

■ Activity with requisites

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

Les étudiants qui choisissent le complément d'option "Création d'entreprises" (13E) réalisent leur mémoire dans le cadre de la formation interdisciplinaire CPME.

Year

1

2

● LBIRE2200	Master thesis				27 Credits		x
● LBIRE2210	Master thesis' accompanying seminar	Charles Bielders Patrick Bogaert (coord.) Pierre Delmelle Caroline Vincke	30h	3 Credits	1 + 2q		x

○ Internship or courses for 10 credits within the complement of the chosen option

❖ LBIR2000	Masters Internship			10 Credits	2q	x
❖	Courses to be chosen for 10 credits in the alternate programme offered in the same option's complement			Credits		x

PROFESSIONAL FOCUS [30.0]

● Mandatory

△ Courses not taught during 2018-2019

⊕ Periodic courses taught during 2018-2019

❖ Optional

○ Periodic courses not taught during 2018-2019

■ Activity with requisites

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

Year

1

2

● LBIRE2102	Applied Geomatic	Pierre Defourny	30h +22.5h	4 Credits	1q	x
● LBIRE2104	Applied soil sciences	Bruno Delvaux	30h +22.5h	5 Credits	2q	x
● LBIRE2105	Water and soil quality's Evaluation	Henri Halen Xavier Rollin (coord.)	30h+7.5h	3 Credits	2q	x
● LBIRE2106	Topometry and photogrammetry	Pierre Defourny (coord.) François Jonard Sébastien Lambot	22.5h +22.5h	4 Credits	2q	x
● LBIRA2109A	Agrarian systems and farm : partim	Pierre Bertin	22.5h +7.5h	3 Credits	1q	x
● LBIRE2204	Territorial diagnostic and decision aid	Pierre Defourny	22.5h	3 Credits	2q	x

							Year
							1 2
○ LBIRE2205	Decision Tools and Project Management	Olivier Cogels Frédéric Gaspart (coord.)	30h+7.5h	3 Credits	1q	x	

○ Statistiques (3 credits)

Un activité parmi:

☒ LBIRE2101	Statistical analysis of spatial and temporal data	Patrick Bogaert	22.5h +15h	3 Credits	2q	x	
☒ LSTAT2110A	Analyse des données	Johan Segers	15h+7.5h	3 Credits	1q	x	

○ Ethics (2 credits)

The students will opt firstly for the course LTECO2300. Two other choices are also available.

☒ LTECO2300	Questions of religious sciences: questions about ethics	Marcela Lobo Bustamante	15h	2 Credits	1q	x	x
☒ LTECO2100	Questions of religious sciences: Biblical readings	Hans Ausloos	15h	2 Credits	1q	x	x
☒ LTECO2200	Questions of religious sciences: reflections about Christian faith	Dominique Martens	15h	2 Credits	2q	x	x

OPTIONS

Students in this programme have a choice of four options followed by a complement to the chosen option in the second year of the programme.

Students who wish to take the CPME module have to enrol in their first year of the master programme. It will be considered however as a complement to the option chosen in the first year.

Students have also the opportunity to take optional courses either from a suggested list or from another programme at UCL. In this case, the choice has to be validated by the Study Counsellor. Prior to that, the student must obtain an authorization from the lecturer of the course.

Environmental Technology: Water, Soil, Air

- > Environmental Technology : Water, Soil, Air (Option 4E) [[en-prog-2018-bire2m-lbire204o](#)]
- > Complément à l'option 4E : Technologies environnementales : eau, sol, air [[en-prog-2018-bire2m-lbire214o](#)]

Filière: Aménagement du territoire

- > Land Use Planning (Option 5E) [[en-prog-2018-bire2m-lbire205o](#)]
- > Option's complement 5E - Land Use Planning [[en-prog-2018-bire2m-lbire215o](#)]

Option: Water and Soil Resources

- > Water and Soil Resources (Option 7E) [[en-prog-2018-bire2m-lbire207o](#)]
- > Option's complement 7E - Water and soil resources [[en-prog-2018-bire2m-lbire217o](#)]

Option: Analysis and Management of Information in Biological Engineering

- > Analysis and Management of Information in Biological Engineering (Option 10E - AGI) [[en-prog-2018-bire2m-lbire210o](#)]
- > Option's complement: Analysis and Management of Information in Biological Engineering [[en-prog-2018-bire2m-lbire211o](#)]

Complément à toutes les options - CPME

- > Business Creation [[en-prog-2018-bire2m-lbire250o](#)]

ENVIRONMENTAL TECHNOLOGY: WATER, SOIL, AIR

ENVIRONMENTAL TECHNOLOGY : WATER, SOIL, AIR (OPTION 4E) [30.0]

Mandatory

Courses not taught during 2018-2019

Periodic courses taught during 2018-2019

Optional

Periodic courses not taught during 2018-2019

Activity with requisites

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

This option will be followed by the corresponding option complement OR by "the Business Creation".

Year

1 2

LBIRC2109	Process engineering : unit operations	Damien Debecker	60h+15h	6 Credits	2q	x	
LBRES2103	Soil physics applied to Agronomy and Environment	Charles Bielders (coord.) Mathieu Javaux	30h+15h	4 Credits	1q	x	
LB RTE2101	Aquatic and soil biological and physical chemistry	Pierre Delmelle Patrick Gerin (coord.)	37.5h +15h	5 Credits	1q	x	
LB RTE2102	Integrated exercises in environmental science and technology	Patrick Gerin Mathieu Javaux Marnik Vanclrooster	45h	4 Credits	2q	x	
LB RTE2201	Human and environmental toxicology	Cathy Debier (coord.) Philippe Hantson	45h+7.5h	5 Credits	1q	x	

							Year
							1 2
● LENVI2007	Renewable energies	Xavier Draye Patrick Gerin (coord.) Hervé Jeanmart Geoffrey Van Moeseke	30h	4 Credits	1q	x	
● LBIRE2218	Séminaire professionnel en gestion des ressources en eau et sol	Charles Bielders (coord.) Marnik Vanclooster	20h	2 Credits	1q		x

COMPLÉMENT À L'OPTION 4E : TECHNOLOGIES ENVIRONNEMENTALES : EAU, SOL, AIR

● Mandatory

△ Courses not taught during 2018-2019

⊕ Periodic courses taught during 2018-2019

☒ Optional

○ Periodic courses not taught during 2018-2019

■ Activity with requisites

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

							Year
							1 2
● LBIR1346	Surface and colloid chemistry	Christine Dupont	30h	3 Credits	2q	x	
● LBIRE2214	Projet intégré en technologies environnementales eau-sol-air	Bruno Delvaux (coord.) Mathieu Javaux	50h+20h	7 Credits	1q		x

● Courses to be chosen for minimum 10 credits amongst the following list:

☒ LBRES2102	Engineering of the water and the pollutants in grounds and groundwaters	Sébastien Lambot (coord.) Marnik Vanclooster	30h +22.5h	5 Credits	2q	x	
☒ LGCIV2073	Hydrogeology and Geoenvironment	Pierre-Yves Bolly	30h	5 Credits	1q		x
☒ LMAPR2647	Sustainable treatment of industrial and domestic waste: Fundamentals ■	Olivier Françoisse Patricia Luis Alconero (coord.) Olivier Noiset Benoît Stenuit	30h+15h	5 Credits	1q		x
☒ LMAPR2648	Sustainable treatment of industrial and domestic waste: Case studies ■	Damien Debecker Olivier Françoisse Patricia Luis Alconero (coord.) Olivier Noiset	30h+15h	5 Credits	2q		x

☒ Programme alternatif au stage d'insertion socio-professionnelle pour l'option 4E

Students not doing the internship will complete the master programme in order to reach minimum 120 credits.

☒ Statistiques (3 credits)

Un activité parmi:

☒ LBIRE2101	Statistical analysis of spatial and temporal data	Patrick Bogaert	22.5h +15h	3 Credits	2q	x	
☒ LSTAT2110A	Analyse des données	Johan Segers	15h+7.5h	3 Credits	1q	x	
☒ LBRES2102	Engineering of the water and the pollutants in grounds and groundwaters	Sébastien Lambot (coord.) Marnik Vanclooster	30h +22.5h	5 Credits	2q	x	x
☒ LGCIV2073	Hydrogeology and Geoenvironment	Pierre-Yves Bolly	30h	5 Credits	1q	x	x
☒ LMAPR2647	Sustainable treatment of industrial and domestic waste: Fundamentals ■	Olivier Françoisse Patricia Luis Alconero (coord.) Olivier Noiset Benoît Stenuit	30h+15h	5 Credits	1q	x	x

						Year
LMAPR2648	Sustainable treatment of industrial and domestic waste: Case studies	Damien Debecker Olivier Françoisse Patricia Luis Alconero (coord.) Olivier Noiset	30h+15h	5 Credits	2q	1 2

FILIÈRE: AMÉNAGEMENT DU TERRITOIRE

LAND USE PLANNING (OPTION 5E) [30.0]

● Mandatory

△ Courses not taught during 2018-2019

⊕ Periodic courses taught during 2018-2019

❖ Optional

○ Periodic courses not taught during 2018-2019

■ Activity with requisites

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

Year						
					1	2
● LICAR2901A	Droit de l'espace bâti et non bâti (partie1)	Christophe Thiebaut	15h	2 Credits	1q	x
● LBRAT2101	Suburban and rural space development	Pierre Defourny (compensates Anne-Laure Jacquemart) Pierre Defourny (coord.) Yves Hanin Anne-Laure Jacquemart	45h +22.5h	6 Credits	1q	x
● LDROP2061	Sustainable Development Law	Charles-Hubert Born	30h	3 Credits	2q	x
● LBIRA2105	Agricultural and rural policies	Bruno Henry de Frahan	30h	3 Credits	1q	x
● LBRAT2102	Spatial modelling of territorial dynamics	Pierre Defourny	15h+15h	3 Credits	2q	x
● LBRAT2103	Sociology of the actors and the rural territories	Yves Hanin	30h	3 Credits	2q	x
● LBIRF2104A	Phytosociologie	Anne-Laure Jacquemart Quentin Ponette Caroline Vincke	15h+30h	4 Credits	2q	x

● Courses to be chosen for 2 credits minimum amongst the following list:

❖ LENVI2011	Méthodes d'évaluation et de gestion environnementale	Jean-Pierre Tack	30h	3 Credits	2q	x
❖ LDROP2062B	Droit de l'urbanisme - 2ème partie	Damien Jans	15h	2 Credits	2q	x
❖ LDROP2063	Sectoral Environmental Law	Nicolas de Sadeleer Damien Jans	30h	3 Credits	2q	x

● Courses to be chosen for 4 credits minimum amongst the following list:

❖ LBIRA2108	Plant production	Pierre Bertin (coord.) Xavier Draye	37.5h +15h	4 Credits	1q	x
❖ LBIRF2105A	Sylviculture et dendrologie: partie sylviculture	Quentin Ponette	30h+30h	4 Credits	1q	x
❖ LBIRA2107A	Animal productions1 : principles and feeding	Eric Froidmont	30h+7.5h	4 Credits	2q	x
❖ LENVI2007	Renewable energies	Xavier Draye Patrick Gerin (coord.) Hervé Jeanmart Geoffrey Van Moeseke	30h	4 Credits	1q	x

OPTION'S COMPLEMENT 5E - LAND USE PLANNING

Mandatory

Courses not taught during 2018-2019

Periodic courses taught during 2018-2019

Optional

Periodic courses not taught during 2018-2019

Activity with requisites

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

							Year
							1 2
● LURBA3011A	Acteurs, territoires et contextes de développement - partim	Bernard Declève Aniss Mezoued Chloé Salembier	30h	3 Credits	1q		x
● LBIRE2215	Projet intégré et excursion en aménagement du territoire	Pierre Defourny Pierre Defourny (compensates Anne-Laure Jacquemart) Anne-Laure Jacquemart (coord.)	50h+20h	7 Credits	1q		x

● Courses to be chosen for 3 credits minimum amongst the suggested list:

☒ LBRAI2210	Microeconomics of Development	Frédéric Gaspart	30h	3 Credits	1q		x
☒ LBRAI2212	Economics of Rural Development	Frédéric Gaspart (coord.) Bruno Henry de Frahan	30h	3 Credits	1q		x
☒ LECGE1228	Regional Economics	Olivier Finance	30h+10h	5 Credits	2q		x

● Courses to be chosen for 7 credits minimum.

☒ Programme alternatif au stage d'insertion socio-professionnelle pour l'option 5E (10 credits)

Les étudiants qui ne réalisent pas le stage d'insertion socio-professionnelle choisissent pour 10 crédits d'activités parmi les intitulés suivants:

● Statistiques (3 credits)

Un activité parmi:

☒ LBIRE2101	Statistical analysis of spatial and temporal data	Patrick Bogaert	22.5h +15h	3 Credits	2q	x	
☒ LSTAT2110A	Analyse des données	Johan Segers	15h+7.5h	3 Credits	1q	x	

● Courses to be chosen for 3 credits minimum amongst the following list:

☒ LBIRA2107A	Animal productions1 : principles and feeding	Eric Froidmont	30h+7.5h	4 Credits	2q		x
☒ LBIRA2108	Plant production	Pierre Bertin (coord.) Xavier Draye	37.5h +15h	4 Credits	1q		x
☒ LBIRF2105A	Sylviculture et dendrologie: partie sylviculture	Quentin Ponette	30h+30h	4 Credits	1q		x
☒ LENVI2011	Méthodes d'évaluation et de gestion environnementale	Jean-Pierre Tack	30h	3 Credits	2q		x
☒ LDROP2062B	Droit de l'urbanisme - 2ème partie	Damien Jans	15h	2 Credits	2q		x
☒ LDROP2063	Sectoral Environmental Law	Nicolas de Sadeleer Damien Jans	30h	3 Credits	2q		x
☒ LBRAI2210	Microeconomics of Development	Frédéric Gaspart	30h	3 Credits	1q		x
☒ LBRAI2212	Economics of Rural Development	Frédéric Gaspart (coord.) Bruno Henry de Frahan	30h	3 Credits	1q		x
☒ LECGE1228	Regional Economics	Olivier Finance	30h+10h	5 Credits	2q		x

● Courses to be chosen for 4 credits

Dans le cadre de cette activité au choix libre, les étudiants sont invités à prendre le cours LENVI2007.

OPTION: WATER AND SOIL RESOURCES

WATER AND SOIL RESOURCES (OPTION 7E) [30.0]

Mandatory

Courses not taught during 2018-2019

Periodic courses taught during 2018-2019

Optional

Periodic courses not taught during 2018-2019

Activity with requisites

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

								Year	
								1	2
● LBRES2102	Engineering of the water and the pollutants in grounds and groundwaters	Sébastien Lambot (coord.) Marnik Vanclouster	30h +22.5h	5 Credits	2q	x			
● LBRES2103	Soil physics applied to Agronomy and Environment	Charles Bielders (coord.) Mathieu Javaux	30h+15h	4 Credits	1q	x			
● LBRES2106	Integrated management of the soil-plant system	Stephan Declerck Xavier Draye (coord.) Guillaume Lobet	45h+15h	6 Credits	2q	x			
● LBRTE2101	Aquatic and soil biological and physical chemistry	Pierre Delmelle Patrick Gerin (coord.)	37.5h +15h	5 Credits	1q	x			
● LBRES2104	IRRIGATION	Mathieu Javaux	20h +22.5h	4 Credits	2q	x			
● LBRES2105	Soil erosion and conservation	Charles Bielders	20h +22.5h	4 Credits	2q	x			
● LBIRE2218	Séminaire professionnel en gestion des ressources en eau et sol	Charles Bielders (coord.) Marnik Vanclouster	20h	2 Credits	1q		x		

OPTION'S COMPLEMENT 7E - WATER AND SOIL RESOURCES

Mandatory

Courses not taught during 2018-2019

Periodic courses taught during 2018-2019

Optional

Periodic courses not taught during 2018-2019

Activity with requisites

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

								Year	
								1	2
● LBIRE2217	Projet intégré et excursions en ressources en eau et en sol	Charles Bielders Mathieu Javaux Marnik Vanclouster (coord.)	50h+40h	9 Credits	1q		x		
● LBRES2204	Integrated water management of water resources	François Jonard Marnik Vanclouster (coord.)	30h +22.5h	5 Credits	1q		x		

● One course to be chosen amongst the following two courses:

☒ LBRES2203	Soil management and planning in warm regions	Charles Bielders (coord.) Bruno Delvaux	22.5h +7.5h	3 Credits	2q		x	
☒ LBRES2206	Advanced Hydrology for Engineers	Mathieu Javaux	20h+15h	3 Credits	2q	x		

● Courses to be chosen for 3 credits minimum.

☒ Programme alternatif au stage d'insertion socio-professionnelle pour l'option 7E (10 credits)

Les étudiants qui ne réalisent pas le stage d'insertion socio-professionnelle choisissent pour 10 crédits d'activités parmi les intitulés suivants:

● Statistiques (3 credits)

Un activité parmi:

							Year
							1 2
☒ LBIRE2101	Statistical analysis of spatial and temporal data	Patrick Bogaert	22.5h +15h	3 Credits	2q	x	
☒ LSTAT2110A	Analyse des données	Johan Segers	15h+7.5h	3 Credits	1q	x	

o One course to be chosen amongst the following two courses:

☒ LBRES2203	Soil management and planning in warm regions	Charles Bielders (coord.) Bruno Delvaux	22.5h +7.5h	3 Credits	2q	x	
☒ LBRES2206	Advanced Hydrology for Engineers	Mathieu Javaux	20h+15h	3 Credits	2q	x	

o Courses to be chosen for 4 credits

Dans le cadre de cette activité au choix libre, les étudiants sont invités à prendre le cours LENVI2007.

OPTION: ANALYSIS AND MANAGEMENT OF INFORMATION IN BIOLOGICAL ENGINEERING

ANALYSIS AND MANAGEMENT OF INFORMATION IN BIOLOGICAL ENGINEERING (OPTION 10E - AGI) [30.0]

Mandatory

Courses not taught during 2018-2019

Periodic courses taught during 2018-2019

Optional

Periodic courses not taught during 2018-2019

Activity with requisites

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

							Year
							1 2
● LBRAT2102	Spatial modelling of territorial dynamics	Pierre Defourny	15h+15h	3 Credits	2q	x	
● LSINF1225	Object-oriented design and data management	Kim Mens	30h+30h	5 Credits	2q	x	
● LBRTI2102	Process-based modelling in bioscience engineering	Emmanuel Hanert	30h+15h	5 Credits	1q	x	
● LSTAT2320	Design of experiment.	Patrick Bogaert Bernadette Govaerts	22.5h +7.5h	5 Credits	2q	x	
● LBRAI2219	Systems Biology Modelling	Xavier Draye (coord.) Guillaume Lobet	30h	3 Credits	1q	x	
● LINMA2472	Algorithms in data science	Vincent Blondel Jean-Charles Delvenne (coord.) Gautier Krings (compensates Vincent Blondel) Leto Peel (compensates Jean-Charles Delvenne)	30h +22.5h	5 Credits	1q	x	
● LCOMU2600	Scientific popularisation	Philippe Verhaegen	30h	4 Credits	1q	x	

OPTION'S COMPLEMENT: ANALYSIS AND MANAGEMENT OF INFORMATION IN BIOLOGICAL ENGINEERING [20.0]

Mandatory

Courses not taught during 2018-2019

Periodic courses taught during 2018-2019

Optional

Periodic courses not taught during 2018-2019

Activity with requisites

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

							Year
							1 2
● LBRTI2202	Special questions in information management	Patrick Bogaert (coord.) Emmanuel Hanert	30h	3 Credits	2q	x	
● LBIRE2211	Integrated project in information management	Patrick Bogaert (coord.) Pierre Defourny Emmanuel Hanert	50h+20h	7 Credits	1q	x	
● LINGI2172	Databases	Siegfried Nijsen	30h+30h	6 Credits	2q	x	

○ Courses to be chosen for min 4 credits among the suggested list:

☒ LBIRA2101A	Biométrie: analyse de la variance	Xavier Draye Bernadette Govaerts	22h+10h	3 Credits	1q	x	
☒ LELEC2920	Communication networks	Sébastien Lughan (compensates Benoit Macq) Benoit Macq	30h+30h	5 Credits	1q	x	
☒ LSINF2275	Data mining & decision making	Marco Saerens	30h+15h	5 Credits	2q	x	
☒ LSTAT2120	Linear models	Christian Hafner	30h+7.5h	5 Credits	1q	x	
☒ LSTAT2350	Data Mining	Tim Verdonck	15h+15h	5 Credits	2q	x	

							Year
							1 2
☒ LELEC2870	Machine Learning : regression, dimensionality reduction and data visualization	John Lee (compensates Michel Verleysen) Michel Verleysen	30h+30h	5 Credits	1q	x	
☒ LPHY2153	Introduction to the physics of the climate system and its modeling	Hugues Goosse Jean-Pascal van Ypersele de Strihou	22.5h +22.5h	5 Credits	1q	x	
☒ LSTAT2020	Statistical computing	Céline Bugli (compensates Bernadette Govaerts) Bernadette Govaerts	20h+20h	6 Credits	1q	x	
☒ LBRAI2101	Population and quantitative genetics	Philippe Baret (coord.) Xavier Draye Xavier Draye (compensates Philippe Baret)	30h+7.5h	3 Credits	1q	x	
☒ LENVI2007	Renewable energies	Xavier Draye Patrick Gerin (coord.) Hervé Jeanmart Geoffrey Van Moeseke	30h	4 Credits	1q	x	
☒ LINGE1216	Management Science: Deterministic models	Philippe Chevalier Jean-Sébastien Tancrez (compensates Mathieu Van Vyve) Mathieu Van Vyve	30h+15h	5 Credits	2q	x	

☒ Programme alternatif au stage d'insertion socio-professionnelle pour l'option 10E (10 credits)

Les étudiants qui ne réalisent pas le stage d'insertion socio-professionnelle choisissent pour 10 crédits d'activités parmi les intitulés suivants:

○ Courses to be chosen for 5 credits minimum:

☒ LBRAI2101A	Biométrie: analyse de la variance	Xavier Draye Bernadette Govaerts	22h+10h	3 Credits	1q	x	
☒ LBRAI2101	Population and quantitative genetics	Philippe Baret (coord.) Xavier Draye Xavier Draye (compensates Philippe Baret)	30h+7.5h	3 Credits	1q	x	
☒ LINGI1122	Program conception methods	Charles Pecheur	30h+30h	5 Credits	2q	x	
☒ LGEO2130	Fundamentals of geographic and environmental modelling	Eric Deleersnijder Sophie Vanwambeke	30h+30h	5 Credits	2q Δ	x	
☒ LELEC2920	Communication networks	Sébastien Lugan (compensates Benoît Macq) Benoît Macq	30h+30h	5 Credits	1q	x	
☒ LSINF2275	Data mining & decision making	Marco Saerens	30h+15h	5 Credits	2q	x	
☒ LSTAT2120	Linear models	Christian Hafner	30h+7.5h	5 Credits	1q	x	
☒ LSTAT2350	Data Mining	Tim Verdonck	15h+15h	5 Credits	2q	x	
☒ LDEMO2220	Population models and projections	Bruno Masquelier	30h+15h	5 Credits	2q	x	
☒ LELEC2870	Machine Learning : regression, dimensionality reduction and data visualization	John Lee (compensates Michel Verleysen) Michel Verleysen	30h+30h	5 Credits	1q	x	
☒ LPHY2153	Introduction to the physics of the climate system and its modeling	Hugues Goosse Jean-Pascal van Ypersele de Strihou	22.5h +22.5h	5 Credits	1q	x	
☒ LPHY2252	Supplements in climate system modeling	Michel Crucifix Thierry Fichefet Qiuzhen Yin	45h+7.5h	6 Credits	2q	x	
☒ LECGE1333	Game theory and information in economics	Julio Davila Muro	30h+10h	5 Credits	2q	x	
☒ LSTAT2020	Statistical computing	Céline Bugli (compensates Bernadette Govaerts) Bernadette Govaerts	20h+20h	6 Credits	1q	x	

						Year	
						1	2
☒ LINGE1216	Management Science: Deterministic models	Philippe Chevalier Jean-Sébastien Tancrez (compensates Mathieu Van Vyve) Mathieu Van Vyve	30h+15h	5 Credits	2q	x	

- Courses to be chosen for 5 credits minimum.
-

COMPLÉMENT À TOUTES LES OPTIONS - CPME

This option complement can be taken whatever option is taken.

BUSINESS CREATION

- Mandatory
- △ Courses not taught during 2018-2019
- ⊕ Periodic courses taught during 2018-2019

- ❖ Optional
- ∅ Periodic courses not taught during 2018-2019
- Activity with requisites

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

							Year
							1 2
● LCPME2001	Entrepreneurship Theory (in French)	Frank Janssen	30h+20h	5 Credits	1q	x	
● LCPME2002	Managerial, legal and economic aspects of the creation of a company (in French)	Yves De Cordt Marine Falize	30h+15h	5 Credits	1q	x	
● LCPME2003	Business plan of the creation of a company (in French)	Julie Hermans Frank Janssen	30h+15h	5 Credits	2q	x	x
● LCPME2004	Advanced seminar on Entrepreneurship (in French)	Roxane De Hoe Frank Janssen	30h+15h	5 Credits	2q	x	

Course prerequisites

A document entitled (nb: not available for this programme bire2m) specifies the activities (course units - CU) with one or more prerequisite(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?*"

BIRE2M - Information

Admission

General (<https://uclouvain.be/en/study/inscriptions/admission-requirements-master-s-degree.html>) and specific admission requirements for this program must be satisfied at the time of enrolling at the university.

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

1. Être titulaire d'un diplôme universitaire de premier cycle en sciences de l'ingénieur, orientation bioingénieur (voir plus loin)
2. Apporter la preuve d'une maîtrise suffisante de la langue française (niveau B1 du Cadre européen commun de référence)

L'étudiant-e ne remplissant pas les conditions citées est invité-e à remettre le relevé des notes de son parcours antérieur au Conseiller aux études, qui examinera le dossier.

Selon le parcours antérieur de l'étudiant-e, le jury peut conditionner l'accès direct au master par l'ajout d'enseignements supplémentaires obligatoires (max 60 crédits) au programme.

Toute information complémentaire peut être obtenue en écrivant à info-agro@uclouvain.be

University Bachelors

Diploma	Special Requirements	Access	Remarks
UCLouvain Bachelors			
Bachelier en sciences de l'ingénieur, orientation bioingénieur	Additional module in Environment	Direct Access	
Autre Bachelier UCL du domaine des sciences et technologies		Based on application: accepted, conditional on further training, or refusal	Le/la futur-e étudiant-e rencontrera obligatoirement le Conseiller aux études pour déterminer le programme à suivre.
Others Bachelors of the French speaking Community of Belgium			
Bachelier en sciences de l'ingénieur, orientation bioingénieur		Direct Access	Enseignements supplémentaires à déterminer selon le programme suivi antérieurement (max.15 crédits). Prendre obligatoirement contact avec le <u>Conseiller aux études</u> .
Bachelors of the Dutch speaking Community of Belgium			
Bachelor of Science in de bio-ingenieurswetenschappen		Based on application: accepted, conditional on further training, or refusal	Enseignements supplémentaires à déterminer selon le programme suivi antérieurement (max.15 crédits). Prendre obligatoirement contact avec le <u>Conseiller aux études</u> .
Foreign Bachelors			
Bachelier en sciences de l'ingénieur, orientation bioingénieur		Based on application: accepted, conditional on further training, or refusal	Sous réserve d'acceptation du dossier.

Enseignements supplémentaires à déterminer selon le programme suivi antérieurement (max.60 crédits). Prendre obligatoirement contact avec le [Conseiller aux études](#).

Non university Bachelors

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

Diploma	Access	Remarks
BA en agronomie (techniques et gestion agricoles) - EPS - crédits supplémentaires entre 45 et 60		Type court
BA en agronomie (toutes orientations) - HE - crédits supplémentaires entre 45 et 60	Les enseignements supplémentaires éventuels peuvent être consultés dans <u>le module complémentaire</u> .	
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		

Holders of a 2nd cycle University degree

Diploma	Special Requirements	Access	Remarks
"Licenciés"			
Ingénieur agronome			
Ingénieur chimiste et des bioindustries			
Bioingénieur			
Licencié en Sciences biomédicales			
Licencié en Géographie			
Licencié en Biologie			
Licencié en Chimie			
Masters			
Master Bioingénieur (autre finalité que sciences et technologies de l'environnement)			
Master en sciences biologiques			
Master en Biochimie et biologie moléculaire et cellulaire			
Master en Biologie des organismes et écologie			
Master en sciences chimiques			
Master en Sciences géographiques			

Holders of a non-University 2nd cycle degree

Adults taking up their university training

> See the website [Valorisation des acquis de l'expérience](#) (<https://uclouvain.be/fr/etudier/vae>)

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

Supplementary classes

To enrol for this Masters, the student must have a good command of certain subjects. If this is not the case, they must add preparatory modules to their Master's programme.

Mandatory

Courses not taught during 2018-2019

Periodic courses taught during 2018-2019

Optional

Periodic courses not taught during 2018-2019

Activity with requisites

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

Students not meeting the prerequisite for this master will have to follow a number of supplementary courses. The programme will be establish with the Study Adviser of the Faculty.

<input checked="" type="radio"/>	Supplementary classes			Credits
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Teaching method

The overall structure of the programmes for the Bachelor of Science in Engineering (Bioengineering) and the Master in Bioengineering clearly reflect the

concepts of specialization, gradual choice and individualization of the courses.

1st cycle (Bachelor) :

- programme designed for the BIR students starting from Year 1
- special programme in second year for all the BIR students
- distinct programme with 30 credits for option courses in third year : three advanced subsidiary subjects available : chemistry , agronomy , environment.

2nd cycle (Master) :

- choice of four Masters in Bioengineering with a professional focus, together with a number of options which partly overlap, optional subjects (either free choice or from the lists) and a final individual dissertation.

This overall structure gives students the opportunity to have a highly individualized programme whilst at the same time retaining both the **comprehensive nature** of the training and the foundation elements of university education : **independence, competence, open-mindedness and interest in research**.

The options, which partly overlap at the level of the four Masters in Bioengineering, correspond to fields of activity identified on the basis of a wide-ranging survey of graduates of the Faculty working professionally and of contacts with potential employers.

The interdisciplinarity and the integrated approach are key dimensions in the training of **bioengineers in environmental science and technology**. This is reflected by :

- availability of courses organized by other faculties ;
- grouping of training activities : combined exercises, joint project, analysis of real situations, simulations ;
- the perception, analysis, diagnosis and content of the course specifications (e.g. management, remediation and development) combine different kinds of tools (e.g. field observation, laboratory analysis, databases and information systems) and various scales in space (e.g. from the molecular to the hydrographic basin or from a region to a sub-continent) and in time ;
- teaching teams with a wide range of expertise ;
- learning how best to work in groups of students to develop a real, independent capacity for intellectual work.

Training for research. through research, which is essential for conceptual and innovative awareness and developing intellectual rigour, is reflected by different types of activities :

- producing a final dissertation and taking part in dissertation seminars ;
- participation in subject seminars providing direct contact with young researchers working in the field of environment science and land development;
- presentation of seminars by students from an outside research group or groups and the production of a dissertation.

The application of skills, knowledge and techniques that students have acquired and how they use them together is taken into account in an integrated project in environmental science and technology. This is an important learning activity supplements the dissertation which, in the view of the Faculty, remains the most important part of training for research.

Through the close connection between the teaching and research, the development of new tools and new approaches is the subject of advanced training from the beginning of the 2nd cycle and is therefore central to this Master programme. All this enables graduates of this programme to be able to make rapid use of new techniques and approaches in their early professional experience.

Evaluation

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

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.

Possible trainings at the end of the programme

The Master in Bioengineering programme follows on directly from the Bachelor in Engineering Science : Bioengineering with an option course in Environment. Successful completion of this 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 ARES-CCD
- **Doctoral programmes** : doctorates in Agronomic Sciences and Biological Engineering.

Contacts

Attention, you are currently reading an archived page: below contact informations were for program study 2018-2019 only. To get current contact informations please got to [current program study](#) site.

Curriculum Management

Faculty

Structure entity

SST/AGRO

Denomination

Faculty of bioscience engineering ([AGRO](#)) (<https://uclouvain.be/repertoirer/entites/agro>)

Sector

Sciences and Technology ([SST](#)) (<https://uclouvain.be/repertoirer/entites/sst>)

Acronym

AGRO

Postal address

Croix du Sud 2 - bte L7.05.01

Web site

1348 Louvain-la-Neuve

Tel: [+32 \(0\) 10 47 37 19](tel:+32(0)10473719) - Fax: [+32 \(0\) 10 47 47 45](tel:+32(0)10474745)

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

Mandate(s)

- Doyen : Philippe Baret
- Directeur administratif de faculté : Christine Denayer

Commission(s) of programme

- Commission de programme - Master Bioingénieur-Sciences agronomiques ([BIRA](#)) (<https://uclouvain.be/fr/repertoirer/entites/BIRA>)
- Commission de programme - Master Bioingénieur-Chimie et bioindustries ([BIRC](#)) (<https://uclouvain.be/fr/repertoirer/entites/BIRC>)
- Commission de programme - Master Bioingénieur-Sciences & technologies de l'environnement ([BIRE](#)) (<https://uclouvain.be/fr/repertoirer/entites/BIRE>)
- Commission de programme - Bachelier en sciences de l'ingénieur, orientation bioingénieur ([CBIR](#)) (<https://uclouvain.be/fr/repertoirer/entites/CBIR>)
- Commission de programme interfacultaire en Sciences et gestion de l'environnement ([ENVI](#)) (<https://uclouvain.be/fr/repertoirer/entites/ENVI>)
- Fermes universitaires de Louvain ([FERM](#)) (<https://uclouvain.be/fr/repertoirer/entites/FERM>)

Academic supervisor: Charles Bielders

Jury

- Charles Bielders
- Quentin Ponette

Useful Contact(s)

- Eric Gaigneaux

Attention, you are currently reading an archived page: below contact informations were for program study 2018-2019 only. To get current contact informations please got to [current program study](#) site.

