

**At Louvain-la-Neuve - 120 credits - 2 years - Day schedule - In french**

 Dissertation/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

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## BIRE2M - Introduction

### Introduction

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## 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.

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[1] The tools are explained on the basis of the radiology 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

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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-2019-bire2m-lbire200t.html ]

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> [Professional Focus](#) [ en-prog-2019-bire2m-lbire200s ]

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Options courses

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- > [Environmental Technology: Water, Soil, Air](#) [ en-prog-2019-bire2m-lbire101g.html ]
  - > [Environmental Technology : Water, Soil, Air \(Option 4E\)](#) [ en-prog-2019-bire2m-lbire204o.html ]
  - > [Complément d'option 4E - Technologies environnementales : eau, sol, air](#) [ en-prog-2019-bire2m-lbire214o.html ]
- > [Filière : Aménagement du territoire](#) [ en-prog-2019-bire2m-lbire103g.html ]
  - > [Land Use Planning \(Option 5E\)](#) [ en-prog-2019-bire2m-lbire205o.html ]
  - > [Option's complement 5E - Land Use Planning](#) [ en-prog-2019-bire2m-lbire215o.html ]
- > [Option: Water and Soil Resources](#) [ en-prog-2019-bire2m-lbire104g.html ]
  - > [Water and Soil Resources \(Option 7E\)](#) [ en-prog-2019-bire2m-lbire207o.html ]
  - > [Option's complement 7E - Water and soil resources](#) [ en-prog-2019-bire2m-lbire217o.html ]
- > [Option: Analysis and Management of Information in Biological Engineering](#) [ en-prog-2019-bire2m-lbire106g.html ]

- > [Analysis and Management of Information in Biological Engineering \(Option 10E - AGI\)](#) [*en-prog-2019-bire2m-lbire210o.html*]
- > [Option's complement: Analysis and Management of Information in Biological Engineering](#) [*en-prog-2019-bire2m-lbire211o.html*]
- > [Complément à toutes les options - CPME](#) [*en-prog-2019-bire2m-lbire107g.html*]
- > [Business Creation](#) [*en-prog-2019-bire2m-lbire250o.html*]

## BIRE2M Detailed programme

## Programme by subject

## CORE COURSES [40.0]

- Mandatory  
 △ Courses not taught during 2019-2020  
 ⊕ Periodic courses 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...)

*L'étudiant-e qui choisit le complément d'option CPME réalise son mémoire dans le cadre de la formation interdisciplinaire en création d'entreprise et remplace l'activité LBIRE2210 par une activité au choix libre pour 3 crédits.*

							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 2019-2020  
 ⊕ Periodic courses 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...)

							Year	
							1	2
○ LBIRA2109A	Agrarian systems and farm : partim	Pierre Bertin	22.5h +7.5h	3 Credits	1q			x
○ LBIRE2102	Applied Geomatic	Pierre Defourny	30h +22.5h	4 Credits	1q			x
○ LBIRE2104	Applied soil sciences	Yannick Agnan Pierre Delmelle (coord.)	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
○ 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 Gaspard (coord.)	30h+7.5h	3 Credits	1q	x	

### ○ Statistiques (3 credits)

3 crédits à choisir parmi les activités suivantes :

⊗ 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	Societies, cultures, religions : Ethical questions	Marcela Lobo Bustamante	15h	2 Credits	1q	x	x
⊗ LTECO2100	Sociétés, cultures, religions : Biblical readings	Hans Ausloos	15h	2 Credits	1q	x	x
⊗ LTECO2200	Societies-cultures-religions : Human Questions	Régis Burnet Dominique Martens	15h	2 Credits	1 ou 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 optionnal 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-2019-bire2m-lbire204o ]
- > [Complément d'option 4E - Technologies environnementales : eau, sol, air](#) [ en-prog-2019-bire2m-lbire214o ]

### Filière : Aménagement du territoire

- > [Land Use Planning \(Option 5E\)](#) [ en-prog-2019-bire2m-lbire205o ]
- > [Option's complement 5E - Land Use Planning](#) [ en-prog-2019-bire2m-lbire215o ]

### Option: Water and Soil Resources

- > [Water and Soil Resources \(Option 7E\)](#) [ en-prog-2019-bire2m-lbire207o ]
- > [Option's complement 7E - Water and soil resources](#) [ en-prog-2019-bire2m-lbire217o ]

### Option: Analysis and Management of Information in Biological Engineering

- > [Analysis and Management of Information in Biological Engineering \(Option 10E - AGI\)](#) [ en-prog-2019-bire2m-lbire210o ]
- > [Option's complement: Analysis and Management of Information in Biological Engineering](#) [ en-prog-2019-bire2m-lbire211o ]

### Complément à toutes les options - CPME

- > [Business Creation](#) [ en-prog-2019-bire2m-lbire250o ]

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

- Mandatory
- △ Courses not taught during 2019-2020
- ⊕ Periodic courses 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...)

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

Year  
1 2

### o Contenu:

● LBIRC2109	Process engineering : unit operations	Frédéric Debaste (compensates) Damien Debecker Damien Debecker	60h+15h	6 Credits	2q	X	
● LBIRE2218	Séminaire professionnel en gestion des ressources en eau et sol	Charles Bielders (coord.) Marnik Vanclooster	20h	2 Credits	1q		X
● LBRES2103	Soil physics applied to Agronomy and Environment	Charles Bielders (coord.) Mathieu Javaux	30h+15h	4 Credits	1q	X	
● LBRTE2101	Aquatic and soil biological and physical chemistry	Pierre Delmelle Patrick Gerin (coord.)	37.5h +15h	5 Credits	1q	X	

						Year	
						1	2
○ LB RTE2102	Integrated exercises in environmental science and technology	Patrick Gerin (coord.) Mathieu Javaux Marnik Vanclooster	45h	4 Credits	2q	x	
○ LB RTE2201	Human and environmental toxicology	Cathy Debier (coord.) Philippe Hantson	37.5h +7.5h	4 Credits	1q	x	
○ LENV I2007	Renewable energies	Xavier Draye Patrick Gerin (coord.) Hervé Jeanmart Geoffrey Van Moeseke	30h	4 Credits	1q	x	

## COMPLÉMENT D'OPTION 4E - TECHNOLOGIES ENVIRONNEMENTALES : EAU, SOL, AIR [20.0]

○ Mandatory

△ Courses not taught during 2019-2020

⊕ Periodic courses 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...)

Year

1 2

### ○ Contenu:

○ LBIR1346	Surface and colloid chemistry	Christine Dupont	30h	3 Credits	2q		x
○ LBIRE2214	Projet intégré en technologies environnementales eau-sol-air	Yannick Agnan Mathieu Javaux (coord.)	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 Olivier Noiset Benoît Stenuit	30h+15h	5 Credits	1q		x
⊗ LMAPR2648	Evaluation of sustainability in chemical and environmental engineering ■	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 la filière Technologies environnementales : eau, sol, air

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

⊗ LBIRE2101	Statistical analysis of spatial and temporal data	Patrick Bogaert	22.5h +15h	3 Credits	2q		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
⊗ 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 Olivier Noiset Benoît Stenuit	30h+15h	5 Credits	1q		x
⊗ LMAPR2648	Evaluation of sustainability in chemical and environmental engineering ■	Damien Debecker Olivier Françoisse Patricia Luis Alconero (coord.) Olivier Noiset	30h+15h	5 Credits	2q		x
⊗ LSTAT2110A	Analyse des données	Johan Segers	15h+7.5h	3 Credits	1q		x

**LAND USE PLANNING (OPTION 5E) [30.0]**

● Mandatory

△ Courses not taught during 2019-2020

⊕ Periodic courses 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...)

Year

1 2

**o Contenu:**

● LBIRA2105	<a href="#">Agricultural and rural policies</a>	Bruno Henry de Frahan	30h	3 Credits	1q	x	
● LBIRF2104A	<a href="#">Phytosociologie</a>	Anne-Laure Jacquemart Quentin Ponette Caroline Vincke	15h+30h	4 Credits	2q	x	
● LBRAT2101	<a href="#">Suburban and rural space development</a>	Pierre Defourny (coord.) Yves Hanin Anne-Laure Jacquemart Marie Pairon (compensates Anne-Laure Jacquemart)	45h+15h	5 Credits	1q	x	
● LBRAT2102	<a href="#">Spatial modelling of territorial dynamics</a>	Pierre Defourny	15h+15h	3 Credits	2q	x	
● LBRAT2103	<a href="#">Sociology of the actors and the rural territories</a>	Yves Hanin	30h	3 Credits	2q	x	
● LDROP2061	<a href="#">Sustainable Development Law</a>	Charles-Hubert Born	30h	3 Credits	2q	x	
● LENVI2011	<a href="#">Méthodes d'évaluation et de gestion environnementale</a>	Jean-Pierre Tack	30h	3 Credits	2q	x	
● LICAR2901A	<a href="#">Droit de l'espace bâti et non bâti (partie1)</a>		25h	2 Credits	1q	x	

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

⊗ LBIRA2108	<a href="#">Plant production</a>	Pierre Bertin (coord.) Xavier Draye	37.5h +15h	4 Credits	1q	x	
⊗ LBIRF2105A	<a href="#">Sylviculture et dendrologie: partie sylviculture</a>	Quentin Ponette	30h+30h	4 Credits	1q	x	
⊗ LENVI2007	<a href="#">Renewable energies</a>	Xavier Draye Patrick Gerin (coord.) Hervé Jeanmart Geoffrey Van Moeseke	30h	4 Credits	1q	x	

**OPTION'S COMPLEMENT 5E - LAND USE PLANNING [20.0]**

● Mandatory

△ Courses not taught during 2019-2020

⊕ Periodic courses 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...)

Year

1 2

**o Contenu:**

● LBIRE2215	<a href="#">Projet intégré et excursion en aménagement du territoire</a>	Pierre Defourny Pierre Defourny (compensates Anne-Laure Jacquemart) Anne-Laure Jacquemart (coord.) Marie Pairon (compensates Anne-Laure Jacquemart)	50h+20h	7 Credits	1q		x
● LDROP2062B	<a href="#">Droit de l'urbanisme - 2ème partie</a>	Charles-Hubert Born Damien Jans	15h	2 Credits	2q		x
● LBIRF2106A	<a href="#">Management of ecological habitat and species conservation</a>	Anne-Laure Jacquemart Nicolas Titeux	15h+15h	3 Credits	1q		x

**o Courses to be chosen for 8 credits minimum.****⊗ Programme alternatif au stage d'insertion socio-professionnelle pour la filière Aménagement du territoire (10 crédits)**

L'étudiant-e qui ne réalise pas le stage d'insertion socio-professionnelle choisit 10 crédits minimum parmi les activités suivantes :

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

⊗ LBIRA2108	<a href="#">Plant production</a>	Pierre Bertin (coord.) Xavier Draye	37.5h +15h	4 Credits	1q		x
⊗ LBIRF2105A	<a href="#">Sylviculture et dendrologie: partie sylviculture</a>	Quentin Ponette	30h+30h	4 Credits	1q		x
⊗ LBIRF2213	<a href="#">Tournée forestière</a>	Anne-Laure Jacquemart Quentin Ponette (coord.) Caroline Vincke	30h	2 Credits	2q		x
⊗ LBRAI2110	<a href="#">Elements of Agroecology</a>	Philippe Baret (coord.) Olivier Baudry (compensates Philippe Baret) Olivier Baudry (compensates Claude Bragard) Pierre Bertin Claude Bragard	30h	3 Credits	1q		x
⊗ LBRAI2210	<a href="#">Microeconomics of Development</a>	Frédéric Gaspart	30h	3 Credits	1q		x
⊗ LBRAI2212	<a href="#">Economics of Rural Development</a>	Frédéric Gaspart (coord.) Goedele Van den Broeck	30h	3 Credits	1q		x
⊗ LBRAI2214	<a href="#">Enquête et pratiques d'intervention en milieu rural tropical</a>	Philippe Baret Pierre Defourny (coord.) Anne Legréve	15h+15h	3 Credits	1q		x
⊗ LDROP2063	<a href="#">Sectoral Environmental Law</a>	Valérie Dupont Damien Jans	30h	3 Credits	2q		x
⊗ LECGE1228	<a href="#">Regional Economics</a>	Arastou Khatibi	30h+10h	5 Credits	2q		x
⊗ LSTAT2110A	<a href="#">Analyse des données</a>	Johan Segers	15h+7.5h	3 Credits	1q		x
⊗ LURBA3011A	<a href="#">Acteurs, territoires et contextes de développement - partim</a>		30h	3 Credits	1q		x

**o Courses to be chosen for 4 credits**

L'étudiant-e est invité à suivre l'activité LENV12007.



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

● Mandatory

△ Courses not taught during 2019-2020

⊕ Periodic courses 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...)

Year

1 2

**o Contenu:**

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

**OPTION'S COMPLEMENT 7E - WATER AND SOIL RESOURCES [20.0]**

○ Mandatory

△ Courses not taught during 2019-2020

⊕ Periodic courses 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...)

Year

1 2

**○ Contenu:**

○ LBIRE2217	<a href="#">Projet intégré et excursions en ressources en eau et en sol</a>	Charles Bielders Mathieu Javaux Marnik Vanclooster (coord.)	50h+40h	9 Credits	1q		x
○ LBRES2203	<a href="#">Soil management and planning in warm regions</a>	Charles Bielders (coord.) Bruno Delvaux	22.5h +7.5h	3 Credits	2q		x
○ LBRES2204	<a href="#">Integrated water management of water resources</a>	François Jonard Marnik Vanclooster (coord.)	30h +22.5h	5 Credits	1q		x
○ LBRES2206	<a href="#">Advanced Hydrology for Engineers</a>	Mathieu Javaux	20h+15h	3 Credits	2q	x	

**⊗ Programme alternatif au stage d'insertion socio-professionnelle pour la filière Ressources en eau et sol (10 crédits)**

L'étudiant-e qui ne réalise pas le stage d'insertion socio-professionnelle choisit 10 crédits minimum parmi les activités suivantes :

○ LENVI2007	<a href="#">Renewable energies</a>	Xavier Draye Patrick Gerin (coord.) Hervé Jeanmart Geoffrey Van Moeseke	30h	4 Credits	1q	x	x
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**○ Statistiques (3 crédits)**

3 crédits à choisir parmi les activités suivantes :

⊗ LBIRE2101	<a href="#">Statistical analysis of spatial and temporal data</a>	Patrick Bogaert	22.5h +15h	3 Credits	2q	x	
⊗ LSTAT2110A	<a href="#">Analyse des données</a>	Johan Segers	15h+7.5h	3 Credits	1q	x	

**○ Free choice of courses for 3 credits.**



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

● Mandatory

△ Courses not taught during 2019-2020

⊕ Periodic courses 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...)

Year

1 2

### o Contenu:

● LBRAI2219	<a href="#">Systems Biology Modelling</a>	Xavier Draye (coord.) Guillaume Lobet	30h	3 Credits	1q	x	
● LBRAT2102	<a href="#">Spatial modelling of territorial dynamics</a>	Pierre Defourny	15h+15h	3 Credits	2q	x	
● LBRTI2102	<a href="#">Process-based modelling in bioscience engineering</a>	Emmanuel Hanert	30h+15h	5 Credits	1q	x	
● LCOMU2600	<a href="#">Scientific popularisation</a>	Philippe Verhaegen	30h	4 Credits	1q	x	
● LINFO1225	<a href="#">Conception orientée objet et gestion de données</a>	Kim Mens	30h+30h	5 Credits	2q	x	
● LINMA2472	<a href="#">Algorithms in data science</a>	Vincent Blondel Jean-Charles Delvenne (coord.) Gautier Krings (compensates Vincent Blondel)	30h +22.5h	5 Credits	1q	x	
● LSTAT2320	<a href="#">Design of experiment.</a>	Patrick Bogaert Bernadette Govaerts	22.5h +7.5h	5 Credits	2q	x	

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

○ Mandatory

△ Courses not taught during 2019-2020

⊕ Periodic courses 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...)

Year

1 2

### ○ Contenu:

○ LBIRE2211	<a href="#">Integrated project in information management</a>	Patrick Bogaert (coord.) Pierre Defourny Emmanuel Hanert	50h+20h	7 Credits	1q		x
○ LBRTI2202	<a href="#">Special questions in information management</a> ■	Patrick Bogaert (coord.) Emmanuel Hanert	30h	3 Credits	2q		x
○ LINGI2172	<a href="#">Databases</a>	Siegfried Nijssen	30h+30h	6 Credits	2q		x

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

⊗ LBIRA2101A	<a href="#">Biométrie: analyse de la variance</a>	Xavier Draye Bernadette Govaerts	22h+10h	3 Credits	1q		x
⊗ LBRAI2101	<a href="#">Population and quantitative genetics</a>	Philippe Baret (coord.) Xavier Draye	30h+7.5h	3 Credits	1q		x
⊗ LELEC2870	<a href="#">Machine Learning : regression, dimensionality reduction and data visualization</a>	John Lee (compensates Michel Verleysen) Michel Verleysen	30h+30h	5 Credits	1q		x
⊗ LELEC2920	<a href="#">Communication networks</a>	Benoît Macq	30h+30h	5 Credits	1q		x
⊗ LENVI2007	<a href="#">Renewable energies</a>	Xavier Draye Patrick Gerin (coord.) Hervé Jeanmart Geoffrey Van Moeseke	30h	4 Credits	1q		x
⊗ LINGE1216	<a href="#">Management Science: Deterministic models</a>	Jean-Sébastien Tancrez (compensates Philippe Chevalier) Mathieu Van Vyve	30h+15h	5 Credits	2q		x
⊗ LPHYS2162	<a href="#">Introduction to the physics of the climate system and its modelling</a>	Hugues Goosse Jean-Pascal van Ypersele de Strihou	22.5h +22.5h	5 Credits	1q		x
⊗ LSINF2275	<a href="#">Data mining &amp; decision making</a>	Marco Saerens	30h+15h	5 Credits	2q		x
⊗ LSTAT2020	<a href="#">Statistical softwares and basic statistical programming</a>	Céline Bugli	15h+15h	4 Credits	1q		x
⊗ LSTAT2120	<a href="#">Linear models</a>	Christian Hafner	30h+7.5h	5 Credits	1q		x
⊗ LSTAT2350	<a href="#">Data Mining</a>	Tim Verdonck	15h+15h	5 Credits	2q		x

### ⊗ Programme alternatif au stage d'insertion socio-professionnelle pour la filière Analyse et gestion de l'information en ingénierie biologique (10 crédits)

L'étudiant-e qui ne réalise pas le stage d'insertion socio-professionnelle choisit 10 crédits minimum parmi les activités suivantes :

#### ○ Courses to be chosen for 5 credits minimum:

⊗ LBIRA2101A	<a href="#">Biométrie: analyse de la variance</a>	Xavier Draye Bernadette Govaerts	22h+10h	3 Credits	1q		x
⊗ LBRAI2101	<a href="#">Population and quantitative genetics</a>	Philippe Baret (coord.) Xavier Draye	30h+7.5h	3 Credits	1q		x
⊗ LDEMO2220	<a href="#">Population models and projections</a>	Bruno Masquelier	30h+15h	5 Credits	2q		x
⊗ LECGE1333	<a href="#">Game theory and information in economics</a>	Julio Davila Muro Pierre Dehez	30h+10h	5 Credits	2q		x
⊗ LELEC2870	<a href="#">Machine Learning : regression, dimensionality reduction and data visualization</a>	John Lee (compensates Michel Verleysen) Michel Verleysen	30h+30h	5 Credits	1q		x
⊗ LELEC2920	<a href="#">Communication networks</a>	Benoît Macq	30h+30h	5 Credits	1q		x

							Year	
							1	2
⊗ LGEO2130	Fundamentals of geographic and environmental modelling	Eric Deleersnijder Jean-François Remacle (compensates Eric Deleersnijder) Sophie Vanwambeke	30h+30h	5 Credits	2q		x	
⊗ LINGE1216	Management Science: Deterministic models	Jean-Sébastien Tancrez (compensates Philippe Chevalier) Mathieu Van Vyve	30h+15h	5 Credits	2q		x	
⊗ LINGI1122	Program conception methods	Charles Pecheur	30h+30h	5 Credits	2q		x	
⊗ LPHYS2162	Introduction to the physics of the climate system and its modelling	Hugues Goosse Jean-Pascal van Ypersele de Strihou	22.5h +22.5h	5 Credits	1q		x	
⊗ LPHYS2267	Paleoclimate dynamics and modelling	Qiuzhen Yin	22.5h +7.5h	5 Credits	2q		x	
⊗ LSINF2275	Data mining & decision making	Marco Saerens	30h+15h	5 Credits	2q		x	
⊗ LSTAT2020	Statistical softwares and basic statistical programming	Céline Bugli	15h+15h	4 Credits	1q		x	
⊗ LSTAT2120	Linear models	Christian Hafner	30h+7.5h	5 Credits	1q		x	
⊗ LSTAT2350	Data Mining	Tim Verdonck	15h+15h	5 Credits	2q		x	

○ Courses to be chosen for 5 credits minimum.

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**BUSINESS CREATION [20.0]**

● Mandatory

△ Courses not taught during 2019-2020

⊕ Periodic courses 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...)

Year

1 2

**o Contenu:**

● LCPME2001	<a href="#">Entrepreneurship Theory (in French)</a>	Blanche Havenne (compensates Frank Janssen) Frank Janssen	30h+20h	5 Credits	1q	x	
● LCPME2002	<a href="#">Managerial, legal and economic aspects of the creation of a company (in French)</a>	Yves De Cordt Marine Falize	30h+15h	5 Credits	1q	x	
● LCPME2003	<a href="#">Business plan of the creation of a company (in French)</a>	Frank Janssen	30h+15h	5 Credits	2q	x	x
● LCPME2004	<a href="#">Advanced seminar on Entrepreneurship (in French)</a>	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 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](https://uclouvain.be/fr/decouvrir/rgee.html) (<https://uclouvain.be/fr/decouvrir/rgee.html>).

**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.

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

#### SUMMARY

- > [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](#)

### University Bachelors

Diploma	Special Requirements	Access	Remarks
<b>UCLouvain Bachelors</b>			
<a href="#">Bachelor in Bioengineering</a>	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 <u>Conseiller aux études</u> pour déterminer le programme à suivre.
<b>Others Bachelors of the French speaking Community of Belgium</b>			
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> .
		Based on application: accepted, conditional on further training, or refusal	
<b>Bachelors of the Dutch speaking Community of Belgium</b>			
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> .
		Based on application: accepted, conditional on further training, or refusal	
<b>Foreign Bachelors</b>			
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 BA en agronomie (toutes orientations) - HE - crédits supplémentaires entre 45 et 60 BA en chimie (biochimie, biotechnologie, chimie appliquée) - EPS - crédits supplémentaires entre 45 et 60 BA en chimie (biochimie, biotechnologie, chimie appliquée, environnement) - HE - crédits supplémentaires entre 45 et 60	Les enseignements supplémentaires éventuels peuvent être consultés dans le <a href="#">module complémentaire</a> .	Type court

## Holders of a 2nd cycle University degree

Diploma	Special Requirements	Access	Remarks
<b>"Licenciés"</b>			
Ingénieur agronome Ingénieur chimiste et des bioindustries Bioingénieur Licencié en Sciences biomédicales Licencié en Géographie Licencié en Biologie Licencié en Chimie		Based on application: accepted, conditional on further training, or refusal	
<b>Masters</b>			
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		Based on application: accepted, conditional on further training, or refusal	

## 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 2019-2020

⊕ Periodic courses 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...)

### ○ Cours passerelle pour le master en bioingénieur, orientation chimie gestion des forêts et espaces naturels ET sciences et technologies de l'environnement (44 credits)

○ LBIR1315	<a href="#">Probability and statistics II</a>	Patrick Bogaert	22.5h+22.5h	3 Credits	1q
○ LBIR1351	<a href="#">Introduction to systems analysis</a>	Philippe Baret	10h+20h	3 Credits	1q
○ LBIR1325A	<a href="#">Transfert de fluides et d'énergie pour les bioingénieurs: partim A</a>	Yann Bartosiewicz Mathieu Javaux Marnik Vanclooster	37.5h+22.5h	5 Credits	1q
○ LBIR1349	<a href="#">Chimie analytique I</a>	Christine Dupont (coord.) Yann Garcia	30h+15h	3 Credits	1q
○ LBIR1350	<a href="#">General Microbiology</a>	Jacques Mahillon	37.5h+15h	4 Credits	2q
○ LBIR1360	<a href="#">Firm management and organisation</a>	Pierre De Muelenaere	30h+7.5h	3 Credits	1q
○ LANGL2480	<a href="#">English Communication Skills for Bioengineers</a>	Ahmed Adriouche Maité Dupont Dominique François Sandrine Meirlaen Mark Theodore Pertuit Charlotte Peters Adrien Pham (coord.) Françoise Stas Anne-Julie Toubeau	30h	2 Credits	2q
○ LBIR1328	<a href="#">Climatology and hydrology applied to agronomy and the environment</a>	Charles Bielders Hugues Goosse Marnik Vanclooster (coord.)	45h+22.5h	6 Credits	1q
○ LBIR1362	<a href="#">Environmental Economics</a>	Frédéric Gaspart	30h+7.5h	3 Credits	2q
○ LBIR1336	<a href="#">Sciences du sol et excursions intégrées</a>	Yannick Agnan (coord.) Richard Lambert Caroline Vincke	30h+37.5h	5 Credits	2q
○ LBIR1334	<a href="#">Introduction to forestry sciences</a>	Quentin Ponette (coord.) Caroline Vincke	22.5h+15h	3 Credits	2q
○ LBIR1325B	<a href="#">Transferts de fluide et d'énergie pour les bioingénieurs (partim B): Case studies</a>	Yann Bartosiewicz Mathieu Javaux Marnik Vanclooster	0h+30h	2 Credits	2q
○ LBIR1354	<a href="#">Biologie des interactions</a>	Anne-Laure Jacquemart (coord.) Anne Legrève	22.5h+15h	3 Credits	2q

### ○ Cours spécifiques (11 credits)

○ LBIR1260	<a href="#">Principles of economics</a>	Goedele Van den Broeck	30h+15h	4 Credits	1q
○	<a href="#">Activités au choix libre</a> <i>The students have a free choice of courses within one of the bachelor programs in Sciences and Technology Sector : <a href="https://uclouvain.be/fr/etudier/les-facultes.html">https://uclouvain.be/fr/etudier/les-facultes.html</a></i>			6 Credits	

## Teaching method

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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

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*The evaluation methods comply with the regulations concerning studies and exams (<https://uclouvain.be/fr/decouvrir/rgee.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

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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 2019-2020 only. To get current contact informations please got to [current program study site](#).**

### Curriculum Management

Faculty

Structure entity

Denomination

Sector

Acronym

Postal address

Web site

Mandate(s)

- Doyen : Philippe Baret
- Directrice administrative de faculté : Christine Denayer

Commission(s) of programme

- Commission de programme - Master Bioingénieur-Sciences agronomiques ([BIRA](https://uclouvain.be/fr/repertoires/entites/BIRA) (<https://uclouvain.be/fr/repertoires/entites/BIRA>))
- Commission de programme - Master Bioingénieur-Chimie et bioindustries ([BIRC](https://uclouvain.be/fr/repertoires/entites/BIRC) (<https://uclouvain.be/fr/repertoires/entites/BIRC>))
- Commission de programme - Master Bioingénieur-Sciences & technologies de l'environnement ([BIRE](https://uclouvain.be/fr/repertoires/entites/BIRE) (<https://uclouvain.be/fr/repertoires/entites/BIRE>))
- Commission de programme - Bachelier en sciences de l'ingénieur, orientation bioingénieur ([CBIR](https://uclouvain.be/fr/repertoires/entites/CBIR) (<https://uclouvain.be/fr/repertoires/entites/CBIR>))
- Commission de programme interfacultaire en Sciences et gestion de l'environnement ([ENVI](https://uclouvain.be/fr/repertoires/entites/ENVI) (<https://uclouvain.be/fr/repertoires/entites/ENVI>))
- Fermes universitaires de Louvain ([FERM](https://uclouvain.be/fr/repertoires/entites/FERM) (<https://uclouvain.be/fr/repertoires/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 2019-2020 only. To get current contact informations please got to [current program study site](#).**

