

Master in Environmental Bioengineering

Focus Professional

Engineering and environmental sciences represent more than 90% of the first year of the master. This fraction is reduced to 60% in the second year to give way to other axes added to complete the overall technical training: socio-economic, legal and governance aspects are developed with water and hydrosystems as highlighted theme.

The analysis of ecosystems comes within the broader context of sustainable management and aims at understanding the natural and semi-natural ecosystems functioning under the pressure of global changes.

Bloc 1 | M-IRBES | MA-IRBE

Cours obligatoires

- BING-F4002** **Acquisition et analyse de données** | Marius GILBERT (Coordinator) and Marc DUFRENE
 5 credits [lecture: 24h, tutorial classes: 36h] 📅 first term 🗨️ French
- BING-F410** **Ecosystèmes aquatiques: fonctionnement et paramètres de qualité de l'eau** | Nathalie GYPENS (Coordinator) and Isabelle GEORGE
 5 credits [lecture: 24h, practical work: 36h] 📅 second term 🗨️ French
- BING-H4000** **Modeling and control of dynamical systems in bioengineering** | Philippe BOGAERTS (Coordinator) and Didier GONZE
 5 credits [lecture: 48h, tutorial classes: 12h] 📅 second term 🗨️ English
- BING-H4003** **Unit operations and processes for the environment and bio-industries** | Benoît HAUT (Coordinator), Frédéric DEBASTE and Benoît SCHEID
 10 credits [lecture: 36h, tutorial classes: 48h, practical work: 36h] 📅 second term 🗨️ English
- BING-H5001** **Biorefinery: from biomass transformation to biobased products** | David CANNELLA (Coordinator)
 5 credits [lecture: 36h, practical work: 24h] 📅 first term 🗨️ English
- BIOL-F412** **Biotechnologies animales et végétales** | Nathalie VERBRUGGEN (Coordinator) and Benoît VANHOLLEBEKE
 5 credits [lecture: 36h, project: 24h] 📅 second term 🗨️ French
- CHIM-H413** **Chemical and biological reactor design** | Frédéric DEBASTE (Coordinator) and David CANNELLA
 5 credits [lecture: 30h, tutorial classes: 18h, practical work: 12h] 📅 first term 🗨️ English
- CHIM-H422** **Environmental technology / Applied hydrology, hydraulic routing and hydrometry** | Michel VERBANCK (Coordinator)
 5 credits [lecture: 36h, tutorial classes: 12h, practical work: 12h] 📅 academic year 🗨️ English
- GEOG-F400** **The Earth system and its interactions** | François FRIPIAT (Coordinator)
 5 credits [lecture: 36h, tutorial classes: 24h] 📅 first term 🗨️ English
- MATH-H304** **Automatique** | Michel KINNAERT (Coordinator)
 5 credits [lecture: 30h, practical work: 30h] 📅 second term 🗨️ French

A total of five credits chosen from the following

- ENVI-F405** (optional) **Climat: sciences et politiques** | Frank PATTYN (Coordinator)
 5 credits [lecture: 40h] 📅 second term 🗨️ French
- ENVI-F510** (optional) **Droit de l'environnement** | Chiara ARMENI (Coordinator)
 5 credits [lecture: 24h] 📅 first term 🗨️ French

Master in Environmental Bioengineering

Focus Professional

Bloc 2 | M-IRBES | MA-IRBE

Cours obligatoires

- BING-F525** [Modélisation des écosystèmes aquatiques](#) | Nathalie GYPENS (Coordinator)
 5 credits [lecture: 24h, tutorial classes: 36h] first term French
- BING-F531** [Bioremédiation / Environmental engineering : current methods and practices](#) | David CANNELLA (Coordinator) and Michel VERBANCK
 5 credits [lecture: 24h, practical work: 12h, project: 24h] first term English/French
- MEMO-F515** [Mémoire](#) | Frédéric DEBASTE (Coordinator) and Nathalie GYPENS
 25 credits [mfe/tfe: 300h] first and second terms
- STAG-F013** [Stage en entreprise en sciences et technologie de l'environnement](#) | Frédéric DEBASTE (Coordinator)
 15 credits [work placement: 180h] first and second terms French

Cours à option

Cours optionnels pour un total de 10 crédits dont 5 crédits à choisir dans la liste des cours répartis en modules ci-dessous et 5 crédits à choisir dans la rubrique Autre UE.

A total of five credits chosen from the following

Module: Ecosystèmes

- BIOL-F417** [Marine ecology](#) | Anton Van De Putte (Coordinator) and Marc KOCHZIUS
 (optional) 5 credits [lecture: 18h, practical work: 9h, field trips: 9h] first term English
- ENVI-F526** [Sciences de l'atmosphère et changements climatiques](#) | Pierre-François COHEUR (Coordinator) and Cathy CLERBAUX
 (optional) 5 credits [lecture: 36h, project: 24h] second term French
- GEOI-F414** [Eléments d'hydrogéologie](#) | Philippe Orban (Coordinator) and Pascal Goderniaux
 (optional) 5 credits [lecture: 24h, practical work: 24h, field trips: 12h] first term French

Module: Ingénierie

- GEST-H501** [Logistics Engineering and Management](#) | Alassane Ballé NDIAYE (Coordinator)
 (optional) 5 credits [lecture: 12h, tutorial classes: 36h] first term English
- PROJ-H417** [Projet coopération au développement / Development cooperation project](#) | Antoine NONCLERCQ (Coordinator)
 (optional) 5 credits [project: 150h] first and second terms French
 Only on selection : see the Development Unit of the Polytechnic School of Brussels (<http://polytech.ulb.be/en/international/development-cooperation>)

Module: Société

- ENVI-F405** [Climat: sciences et politiques](#) | Frank PATTYN (Coordinator)
 (optional) 5 credits [lecture: 40h] second term French
- ENVI-F409** [Economie écologique](#) | Thomas BAULER (Coordinator)
 (optional) 5 credits [lecture: 24h, practical work: 12h] second term French
- ENVI-F434** [Géohistoire des relations sociétés - environnement](#) | Jean-Michel DECROLY (Coordinator) and Chloé DELIGNE
 (optional) 5 credits [lecture: 36h] first term French

ENVI-F510 (optional) **Droit de l'environnement** | Chiara ARMENI (Coordinator)
⌚ 5 credits [lecture: 24h] 📅 first term 🗨️ French

Module: Impact environnemental

BIOL-F441 (optional) **Ecotoxicologie** | Philippe DUBOIS (Coordinator)
⌚ 5 credits [lecture: 18h] 📅 second term 🗨️ French

ENVI-F452 (optional) **Environmental impact analysis and management** | Wouter ACHTEN (Coordinator)
⌚ 5 credits [lecture: 24h, practical work: 12h, project: 24h] 📅 first term 🗨️ English/French

ENVI-F454 (optional) **Energie: Société et environnement** | Michel HUART (Coordinator) and Nadine MATTIELLI
⌚ 5 credits [lecture: 30h, practical work: 12h, project: 24h] 📅 first term 🗨️ French

Module: Télédétection

GEOG-F211 (optional) **Systèmes d'information géographique et projections** | Eléonore WOLFF (Coordinator) and Michele D'ADDERIO
⌚ 5 credits [lecture: 24h, practical work: 36h] 📅 second term 🗨️ French

GEOG-F425 (optional) **Télédétection** | Eléonore WOLFF (Coordinator)
⌚ 5 credits [lecture: 30h, practical work: 30h] 📅 first term 🗨️ French

Autre UE

Choisir 5 crédits dans la liste des cours à option ci-dessus ou dans les programmes de l'Ecole de Bioingénierie de Bruxelles, de la Faculté des Sciences, de l'Ecole Polytechnique de Bruxelles ou dans le programme des Masters bioingénieurs de la Faculté de Bioingénieurs de l'Université Catholique de Louvain (UCL).

A total of five credits chosen from the following

TEMP-0000 (optional) **Cours extérieurs au programme**
⌚ 5 credits 📅 academic year 🗨️ French