

Master in Environmental Science and Management

Focus Environmental Science

This Master programme uses an interdisciplinary approach, relying on both natural and human sciences (ecology, geology, economy, law, etc.). Furthermore, it is structured around environmental domains (water, soil, air, etc.), economic sectors (agriculture, industry, energy, etc.), and environmental issues (climate change, waste, etc.).

Bloc 1 | M-ENVIE | MA-ENVI

Tronc commun (avec la finalité Gestion de l'environnement)

- ENVI-F405 **Climat: sciences et politiques** | Frank PATTYN (Coordinator)
⌚ 5 credits [lecture: 40h] 📅 second term 🗨️ French
- ENVI-F409 **Economie écologique** | Thomas BAULER (Coordinator)
⌚ 5 credits [lecture: 24h, practical work: 12h] 📅 second term 🗨️ French
- ENVI-F437 **Systèmes biologiques** | Sonia VANDERHOEVEN (Coordinator)
⌚ 5 credits [lecture: 36h] 📅 first term 🗨️ French
- ENVI-F452 **Environmental impact analysis and management** | Wouter ACHTEN (Coordinator)
⌚ 5 credits [lecture: 24h, practical work: 12h, project: 24h] 📅 first term 🗨️ English/French

Cours spécifiques: Observation et modélisation du système Terre

- ENVI-F432 **Cycles biogéochimiques globaux : processus, quantification, attribution** | Steeve BONNEVILLE (Coordinator), Goulven GILDAS LARUELLE and Pierre REGNIER
⌚ 5 credits [lecture: 30h] 📅 second term 🗨️ French
- ENVI-F526 **Sciences de l'atmosphère et changements climatiques** | Pierre-François COHEUR (Coordinator) and Cathy CLERBAUX
⌚ 5 credits [lecture: 36h, project: 24h] 📅 second term 🗨️ French
- ENVI-F527 **Matière et énergie dans l'environnement: analyse, transport et instabilités** | François FRIPIAT (Coordinator) and Anne DE WIT
⌚ 5 credits [lecture: 36h, practical work: 24h] 📅 second term 🗨️ French
- GEOG-F400 **The Earth system and its interactions** | François FRIPIAT (Coordinator)
⌚ 5 credits [lecture: 36h, tutorial classes: 24h] 📅 first term 🗨️ English
- GEOG-F425 **Télé-détection** | Eléonore WOLFF (Coordinator)
⌚ 5 credits [lecture: 30h, practical work: 30h] 📅 first term 🗨️ French

Options dirigées

Choisir 20 crédits partagés entre les deux blocs.

A total of 15 credits chosen from the following

Module Glaciologie-atmosphère-climat

Le cours GEOG-F502 est à choisir en Bloc 2

A total of 15 credits chosen from the following

- ENVI-F451 (optional) **Télé-détection des variables climatiques et environnementales** | Pierre-François COHEUR (Coordinator), Sophie BAUDUIN and Lieven CLARISSE
⌚ 5 credits [lecture: 36h, practical work: 12h, project: 28h] 📅 second term 🗨️ English/French

GEOG-F408 (optional) **Modélisation en géosciences : glaciologie et climatologie** | Frank PATTYN (Coordinator)
⌚ 5 credits [lecture: 24h, tutorial classes: 24h] 📅 first term 🗨️ French

GEOG-F410 (optional) **Paléoclimatologie** | François FRIPIAT (Coordinator)
⌚ 5 credits [lecture: 36h, practical work: 12h] 📅 second term 🗨️ French

GEOG-F502 (optional) **Questions approfondies de glaciologie-atmosphère-climat** | François FRIPIAT (Coordinator)
⌚ 5 credits [lecture: 8h, tutorial classes: 24h] 📅 academic year 🗨️ French
Ce cours est à choisir en bloc 2

Module Géosphère-hydrosphère-biosphère

A total of 15 credits chosen from the following

BIOL-F4005 (optional) **Social-ecological systems** | Farid DAHDOUH-GUEBAS (Coordinator)
⌚ 5 credits [lecture: 30h, tutorial classes: 6h, field trips: 12h] 📅 first term 🗨️ English

GEOL-F2001 (optional) **Introduction à la minéralogie et à la pédologie** | Steeve BONNEVILLE (Coordinator) and Thomas DROUET DE LA THIBAUDERIE
⌚ 5 credits [lecture: 28h, practical work: 12h, field trips: 12h] 📅 first term 🗨️ French

GEOL-F4002 (optional) **Volcanology** | Karen FONTIJN (Coordinator) and Corentin CAUDRON
⌚ 5 credits [lecture: 24h, tutorial classes: 8h, practical work: 8h, project: 30h] 📅 second term 🗨️ English

GEOL-F414 (optional) **Eléments d'hydrogéologie** | Philippe Orban (Coordinator) and Pascal Goderniaux
⌚ 5 credits [lecture: 24h, practical work: 24h, field trips: 12h] 📅 first term 🗨️ French

GEOL-F428 (optional) **Earth System Modeling** | Pierre REGNIER (Coordinator) and Sandra ARNDT
⌚ 5 credits [lecture: 24h, practical work: 24h] 📅 first term 🗨️ French

Master in Environmental Science and Management

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Bloc 2 | M-ENVIE | MA-ENVI

Tronc commun (avec la finalité Gestion de l'environnement)

ENVI-F403 **Socio-environmental Dynamics** | Maria MANCILLA GARCIA (Coordinator)

🕒 5 credits [lecture: 24h, practical work: 12h] 📅 first term 🗣️ English

ENVI-F510 **Droit de l'environnement** | Chiara ARMENI (Coordinator)

🕒 5 credits [lecture: 24h] 📅 first term 🗣️ French

MEMO-F529 **Mémoire de fin d'études** | François FRIPIAT (Coordinator)

🕒 20 credits [mfe/tfe: 240h] 📅 first and second terms

Cours spécifiques: Observation et modélisation du système terre

GEOG-F500 **Apprentissage du mémoire** | François FRIPIAT (Coordinator) and Frank PATTYN

🕒 5 credits [practical work: 48h] 📅 second term 🗣️ French

Options dirigées

Compléter le module choisi en bloc 1 en prenant 5 crédits en bloc 2 (20 crédits partagés entre les 2 blocs).

Au maximum 40 crédits à choisir parmi:

Up to 40 credits chosen from the following

Module Glaciologie-atmosphère-climat

A total of five credits chosen from the following

ENVI-F451 (optional) **Télétection des variables climatiques et environnementales** | Pierre-François COHEUR (Coordinator), Sophie Bauduin and Lieven CLARISSE

🕒 5 credits [lecture: 36h, practical work: 12h, project: 28h] 📅 second term 🗣️ English/French

GEOG-F408 (optional) **Modélisation en géosciences : glaciologie et climatologie** | Frank PATTYN (Coordinator)

🕒 5 credits [lecture: 24h, tutorial classes: 24h] 📅 first term 🗣️ French

GEOG-F410 (optional) **Paléoclimatologie** | François FRIPIAT (Coordinator)

🕒 5 credits [lecture: 36h, practical work: 12h] 📅 second term 🗣️ French

GEOG-F502 (optional) **Questions approfondies de glaciologie-atmosphère-climat** | François FRIPIAT (Coordinator)

🕒 5 credits [lecture: 8h, tutorial classes: 24h] 📅 academic year 🗣️ French

Ce cours est à choisir en bloc 2

Module Géosphère-hydrosphère-biosphère

A total of five credits chosen from the following



- BIOL-F4005 (optional) **Social-ecological systems** | Farid DAHDOUH-GUEBAS (Coordinator)
⌚ 5 credits [lecture: 30h, tutorial classes: 6h, field trips: 12h] 📅 first term 🗨 English
- GEOL-F2001 (optional) **Introduction à la minéralogie et à la pédologie** | Steeve BONNEVILLE (Coordinator) and Thomas DROUET DE LA THIBAUDERIE
⌚ 5 credits [lecture: 28h, practical work: 12h, field trips: 12h] 📅 first term 🗨 French
- GEOL-F4002 (optional) **Volcanology** | Karen FONTIJN (Coordinator) and Corentin CAUDRON
⌚ 5 credits [lecture: 24h, tutorial classes: 8h, practical work: 8h, project: 30h] 📅 second term 🗨 English
- GEOL-F414 (optional) **Eléments d'hydrogéologie** | Philippe Orban (Coordinator) and Pascal Goderniaux
⌚ 5 credits [lecture: 24h, practical work: 24h, field trips: 12h] 📅 first term 🗨 French
- GEOL-F428 (optional) **Earth System Modeling** | Pierre REGNIER (Coordinator) and Sandra ARNDT
⌚ 5 credits [lecture: 24h, practical work: 24h] 📅 first term 🗨 French

Cours optionnels

A total of 20 credits chosen from the following

- BING-F301 (optional) **Microbiologie générale et environnementale** | Isabelle GEORGE (Coordinator), Sigrid FLAHAUT and Cécile Thonar
⌚ 5 credits [lecture: 36h, practical work: 24h] 📅 second term 🗨 French
- BING-F525 (optional) **Modélisation des écosystèmes aquatiques** | Nathalie GYPENS (Coordinator)
⌚ 5 credits [lecture: 24h, tutorial classes: 36h] 📅 first term 🗨 French
- BING-Y001 (optional) **Tracer Isotope Biochemistry** | Marc ELSKENS (Coordinator) and Steven Goderis
⌚ 6 credits [lecture: 24h] 📅 first term 🗨 English
- BIOL-F4005 (optional) **Social-ecological systems** | Farid DAHDOUH-GUEBAS (Coordinator)
⌚ 5 credits [lecture: 30h, tutorial classes: 6h, field trips: 12h] 📅 first term 🗨 English
- BIOL-F417 (optional) **Marine ecology** | Anton Van De Putte (Coordinator) and Marc KOCHZIUS
⌚ 5 credits [lecture: 18h, practical work: 9h, field trips: 9h] 📅 first term 🗨 English
- BIOL-F441 (optional) **Ecotoxicologie** | Philippe DUBOIS (Coordinator)
⌚ 5 credits [lecture: 18h] 📅 second term 🗨 French
- BIOL-F443 (optional) **Plant responses to environmental stress** | Nathalie VERBRUGGEN (Coordinator)
⌚ 5 credits [lecture: 24h, project: 24h] 📅 first term 🗨 English
- BIOL-F444 (optional) **Plant-soil interactions** | Pierre Jacques MEERTS (Coordinator)
⌚ 5 credits [lecture: 24h, tutorial classes: 12h] 📅 first term 🗨 English
Ce cours ne sera pas donné en 2023-2024.
- CHIM-F474 (optional) **Chimie de l'environnement et risques chimiques** | Pierre-François COHEUR (Coordinator) and Laurence RONGY
⌚ 5 credits [lecture: 36h, tutorial classes: 12h, practical work: 12h] 📅 first term 🗨 French
- ENVI-F451 (optional) **Télé-détection des variables climatiques et environnementales** | Pierre-François COHEUR (Coordinator), Sophie Bauduin and Lieven CLARISSE
⌚ 5 credits [lecture: 36h, practical work: 12h, project: 28h] 📅 second term 🗨 English/French
- ENVI-F455 (optional) **Géoressources du sous-sol et anthropocène** | Corentin CAUDRON, Adel EL Gammal and Nadine MATTIELLI
⌚ 5 credits [lecture: 34h, seminars: 10h, field trips: 16h] 📅 second term 🗨 French
- ENVI-F529 (optional) **Ressources: Genèse et environnement** | Nadine MATTIELLI (Coordinator), Corentin CAUDRON and Michel HUART
⌚ 5 credits [lecture: 22h, practical work: 6h, field trips: 12h] 📅 second term 🗨 French
- ENVI-Y006 (optional) **Metal biogeochemical cycle**
⌚ 3 credits [lecture: 12h] 📅 second term 🗨 English



ENVI-Y008 <small>(optional)</small>	Atmosphere and ocean : physics and dynamics Thierry FICHEFET (Coordinator) 🕒 10 credits [lecture: 52,5h, tutorial classes: 7,5h] 📅 first term 🗨 French
ENVI-Y009 <small>(optional)</small>	Introduction to the physics of the climate system and its modeling Hugues GOOSSE (Coordinator) and Francesco RAGONE 🕒 5 credits [lecture: 22,5h, tutorial classes: 22,5h] 📅 first term 🗨 French
GEOG-F211 <small>(optional)</small>	Systèmes d'information géographique et projections Eléonore WOLFF (Coordinator) and Michele D'ADDERIO 🕒 5 credits [lecture: 24h, practical work: 36h] 📅 second term 🗨 French
GEOG-F408 <small>(optional)</small>	Modélisation en géosciences : glaciologie et climatologie Frank PATTYN (Coordinator) 🕒 5 credits [lecture: 24h, tutorial classes: 24h] 📅 first term 🗨 French
GEOG-F410 <small>(optional)</small>	Paléoclimatologie François FRIPIAT (Coordinator) 🕒 5 credits [lecture: 36h, practical work: 12h] 📅 second term 🗨 French
GEOG-F502 <small>(optional)</small>	Questions approfondies de glaciologie-atmosphère-climat François FRIPIAT (Coordinator) 🕒 5 credits [lecture: 8h, tutorial classes: 24h] 📅 academic year 🗨 French Ce cours est à choisir en bloc 2
GEOG-Y001 <small>(optional)</small>	Travaux dirigés et modélisation climatique 🕒 3 credits [lecture: 15h] 📅 first term 🗨 French
GEOG-Y004 <small>(optional)</small>	Dynamics and modelling of glacial systems Philippe HUYBRECHTS (Coordinator) 🕒 6 credits [lecture: 26h, tutorial classes: 39h] 📅 second term 🗨 English
GEOG-Y005 <small>(optional)</small>	Introduction à l'océanographie physique et météorologie marine 🕒 3 credits [lecture: 20h, tutorial classes: 10h] 📅 first term 🗨 French
GEOL-F2001 <small>(optional)</small>	Introduction à la minéralogie et à la pédologie Steeve BONNEVILLE (Coordinator) and Thomas DROUET DE LA THIBAUDERIE 🕒 5 credits [lecture: 28h, practical work: 12h, field trips: 12h] 📅 first term 🗨 French
GEOL-F4002 <small>(optional)</small>	Volcanology Karen FONTIJN (Coordinator) and Corentin CAUDRON 🕒 5 credits [lecture: 24h, tutorial classes: 8h, practical work: 8h, project: 30h] 📅 second term 🗨 English
GEOL-F414 <small>(optional)</small>	Eléments d'hydrogéologie Philippe Orban (Coordinator) and Pascal Goderniaux 🕒 5 credits [lecture: 24h, practical work: 24h, field trips: 12h] 📅 first term 🗨 French
GEOL-F428 <small>(optional)</small>	Earth System Modeling Pierre REGNIER (Coordinator) and Sandra ARNDT 🕒 5 credits [lecture: 24h, practical work: 24h] 📅 first term 🗨 French
GEOL-F436 <small>(optional)</small>	The Global Coastal Ocean on a Changing Planet Sandra ARNDT (Coordinator) and Pierre REGNIER 🕒 5 credits [lecture: 12h, practical work: 24h, field trips: 24h] 📅 second term 🗨 French
GEOL-F438 <small>(optional)</small>	Géochimie isotopique de l'environnement : Concepts, applications, et méthodes Nadine MATTIELLI (Coordinator), François FRIPIAT and Steven Goderis 🕒 5 credits [lecture: 24h, practical work: 16h] 📅 second term 🗨 French
STAG-F026 <small>(optional)</small>	Stage François FRIPIAT (Coordinator) 🕒 10 credits [work placement: 300h] 📅 academic year 🗨 French
TRAN-F201 <small>(optional)</small>	Introduction aux enjeux de la durabilité Wouter ACHTEN (Coordinator) and Chiara ARMENI 🕒 5 credits [lecture: 24h, project: 24h] 📅 second term 🗨 French

