

**At Louvain-la-Neuve - 120 credits - 2 years - Day schedule - In English**Dissertation/Graduation Project : **YES** - Internship : **YES**Activities in English: **YES** - Activities in other languages : **NO**Activities on other sites : **NO**Main study domain : **Sciences**Organized by: **Faculty of Science (SC)**Programme acronym: **CHIM2M** - Francophone Certification Framework: 7**Table of contents**

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## CHIM2M - Introduction

### Introduction

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#### Introduction

This master's degree trains top-level scientists able to solve contemporary problems linked to chemistry; it provides a solid theoretical formation and develops experimental ability, synthetic and critical way of thinking, as well as the rigour of scientific reasoning and expression.

The completion of a final year dissertation (master thesis) in one of the laboratories of the Institute of Condensed Matter and Nanosciences or the Institute of Biomolecular Science and Technology furthermore constitutes an initiation to research, opening the door to a potential doctorate.

#### Your profile

You

- want to help solve the great challenges of our time by creating new molecules with novel properties
- would like to work in university or public research institutes, in industrial laboratories,
- wish to develop experimental tools and sharp knowledge in advanced chemistry,
- envision to teach chemistry in upper secondary education classes.

#### Your future job

Chemistry is constantly developing and offers many job prospects. Industry is one of the largest employers: petrochemicals, pharmaceuticals, biotechnology, plastics and polymers, paint manufacturing, cosmetics, dyes, waste recycling, etc.

The chemist also puts his-her skills at the service of research (research institutes or industrial laboratories). Chemistry also opens up career opportunities in education, computer science, banking and insurance and other sometimes unsuspected professions. The environment is now an increasingly demanding sector.

#### Your programme

This master offers you

- a solid theoretical training in the fundamental orientations of chemistry ;
- high experimental and advanced research skills in chemistry;
- great freedom in setting up your program;
- an opportunity to test your skills in the field, in a research lab, in industry or in a high school class;
- the possibility of completing your internship or part of your Master's degree abroad.

## CHIM2M - Teaching profile

### Learning outcomes

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

1. Maîtriser un ensemble de « savoirs scientifiques » permettant de résoudre des problématiques chimiques complexes
  - 1.1 Identifier et utiliser les connaissances « essentielles » des sciences fondamentales : biologie, chimie, mathématique, physique pour résoudre une problématique donnée
  - 1.2 Identifier et utiliser les savoirs « spécialisés » de la chimie : organique, inorganique, analytique, physique pour résoudre une problématique disciplinaire complexe
  - 1.3 Identifier et utiliser les savoirs « hautement spécialisés » dans une des orientations de la chimie pour résoudre une problématique disciplinaire complexe
2. Mener à son terme une démarche scientifique complète appliquée à l'appréhension, à l'analyse ou au développement d'un procédé chimique
  - 2.1 Définir une problématique en des termes scientifiques rigoureux
  - 2.2 Rechercher des informations pertinentes (en français/anglais) en vue de documenter une problématique en chimie
  - 2.3 Quantifier les propriétés d'une molécule : thérapeutique, optique, électrique, magnétique, tensio-active, colorante, ...
  - 2.4 Intégrer les connaissances acquises pour la formulation du problème en termes d'hypothèses permettant de proposer une solution au problème chimique posé
  - 2.5 Synthétiser et exploiter des documents scientifiques et techniques spécialisés en vue de résoudre une problématique chimique.
  - 2.6 Etablir les relations entre les concepts et les résultats (structure-propriété pour une molécule donnée)
  - 2.7 Élaborer de manière innovante un mode opératoire permettant d'amener la réponse demandée.
  - 2.8 Proposer les solutions les plus appropriées à une problématique chimique posée
  - 2.9 Évaluer l'impact énergétique et environnemental d'un nouveau procédé chimique
  - 2.10 Rédiger un projet en chimie dans sa globalité en planifiant les étapes de travail
3. Expérimenter (en laboratoire) des procédés chimiques en vue de répondre à une problématique posée
  - 3.1 Réaliser des expériences (en laboratoire) menant à une ou des solutions au problème chimique posé : observer, analyser, interpréter, discuter, comparer, planifier
  - 3.2 Proposer ou répéter une méthode de synthèse ou un plan d'analyse en vue d'obtenir une molécule donnée ou de déterminer sa concentration.
  - 3.3 Optimiser les résultats d'une problématique chimique : isoler, purifier et vérifier la structure d'une molécule, mesurer ses propriétés et sa concentration
  - 3.4 Veiller à la sécurité des produits dans le respect des règles de l'art de la chimie.
4. Communiquer oralement et par écrit en français et en anglais en vue de mener à son terme un projet scientifique en chimie
  - 4.1 Formuler des conclusions pour la rédaction rigoureuse d'un rapport dans un esprit de synthèse.
  - 4.2 Rédiger des documents techniques en chimie.
  - 4.3 Communiquer sous forme synthétique, graphique et schématique les conclusions d'une étude chimique.
  - 4.4 Savoir expliquer oralement et par écrit les résultats d'une problématique/travaux/étude (structure d'une molécule ou d'un mélange de molécules inconnues) en utilisant les techniques modernes de communication
5. Rigueur scientifique et analyse critique
  - 5.1 Faire preuve d'une capacité d'autoévaluation en connaissant ses compétences et les limites de sa propre expertise
  - 5.2 Faire preuve d'ouverture d'esprit, accepter des approches innovantes dans le domaine de la chimie
6. **S'il choisit la finalité didactique**, mobiliser les compétences nécessaires pour entamer efficacement le métier d'enseignant du secondaire supérieur en chimie et pouvoir y évoluer positivement:
  - 6.1. Intervenir en contexte scolaire, en partenariat avec différents acteurs.
  - 6.2. Enseigner en situations authentiques et variées.
  - 6.3. Exercer un regard réflexif et se projeter dans une logique de développement continu.Pour plus de détails, consultez l'[Teacher Training Certificate \(upper secondary education\) - Chemistry](#).
7. **S'il choisit la finalité approfondie**, enrichir ses connaissances, parfaire sa formation à la démarche expérimentale, aux technologies et à la communication scientifique écrite et orale dans l'optique d'une carrière dans la recherche
  - 7.1 Témoigner d'une expérience acquise via une formation pratique sur des questions scientifiques ciblées au sein de laboratoires d'accueil dans différentes universités
  - 7.2 Utiliser les compétences acquises au cours du Master dans un environnement nouveau et porteur au sein d'une institution de recherche nationale ou internationale
8. **S'il choisit la finalité spécialisée**, enrichir ses connaissances dans le domaine de la chimie et se confronter à la réalité de l'entreprise

8.1 Faire preuve de l'acquisition des approches méthodologiques et technologiques de pointe en relation avec les pratiques du monde de l'entreprise

8.2 Utiliser les compétences acquises au cours du Master dans un environnement nouveau et porteur au sein d'une entreprise au sens large

## Programme structure

The program consists of a common core of 90 ECTS (credits), and a more focused training of 30 credits (to be chosen between "in-depth", "didactic" or "specialized: industrial chemistry"). Note that the core curriculum counts 19 optional course credits.

The students in chemistry also have the possibility to register to the CPME focus: "[Interdisciplinary Program in Entrepreneurship](#)".

## CHIM2M Programme

## Detailed programme by subject

### CORE COURSES [90.0]

- Mandatory
- ✘ Optional
- △ Not offered in 2023-2024
- ⊖ Not offered in 2023-2024 but offered the following year
- ⊕ Offered in 2023-2024 but not the following year
- △ ⊕ Not offered in 2023-2024 or the following year
- Activity with requisites
- 🌐 Open to incoming exchange students
- 🚫 Not open to incoming exchange students
- [FR] Teaching language (FR, EN, ES, NL, DE, ...)

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

Year

1 2

### ○ Cours de formation disciplinaire générale (27 credits)

○ LCHM2120	<a href="#">Analytical Chemistry II and exercises</a>	Yann Garcia	EN [q1] [30h+40h] [6 Credits] 🌐 > French-friendly	X	
○ LCHM2130	<a href="#">Inorganic chemistry II and Exercises</a>	Sophie Hermans	EN [q1] [30h+45h] [6 Credits] 🌐 > French-friendly	X	
○ LCHM2140	<a href="#">Organic chemistry IV and exercices</a>	Benjamin Elias Olivier Riant	EN [q1] [30h+40h] [6 Credits] 🌐 > French-friendly	X	
○ LCHM2150	<a href="#">Physical chemistry and physico-chemical calculations II</a>	Tom Leysens	EN [q1] [45h+10h] [6 Credits] 🌐 > French-friendly	X	
○ LCHM2280	<a href="#">Industrial chemistry</a>	Marc Lacroix Vincent Mutterer	EN [q2] [30h] [3 Credits] 🌐 > French-friendly		X

### ○ Cours de formation disciplinaire complémentaire (9 credits)

○ LCHM2181	<a href="#">Homogeneous and heterogeneous catalysis</a>	Eric Gaigneaux Olivier Riant	EN [q1] [22.5h+7.5h] [3 Credits] 🌐 > French-friendly	X	X
○ LCHM2170	<a href="#">Introduction to protein biotechnology</a>	Pierre Morsomme Patrice Soumillion	EN [q1] [22.5h+7.5h] [3 Credits] 🌐 > French-friendly	X	X

### ○ deux cours parmi les quatre suivants : (6 credits)

				Year	
				1	2
⊗ LCHM2151	Advanced mass spectrometry	Charles-André Fustin	EN [q1] [22.5h+7.5h] [3 Credits] > French-friendly	X	X
⊗ LCHM2152	NMR Complements	Michael Singleton	EN [q1] [22.5h+7.5h] [3 Credits] > French-friendly	X	X
⊗ LCHM2122	Analysis physical methods of solids	Charles-André Fustin Yann Garcia	EN [q1] [30h] [3 Credits] > French-friendly	X	X
⊗ LBIR1346	Surface and colloid chemistry	Christine Dupont (coord.) Aurélien vander Straeten (compensates Christine Dupont)	FR [q2] [30h] [3 Credits]	X	X

### o Mémoire et séminaire (30 credits)

○ LCHM2999	Master's thesis		EN [q2] [] [27 Credits] > French-friendly		X
○ LCHM2290	Thesis tutorial	Ariane Halleux Olivier Riant	EN [q1] [15h] [3 Credits] > French-friendly		X

### o Compétences transversales (2 credits)

#### ○ un cours de philosophie parmi

⊗ LSC2001	Introduction to contemporary philosophy	Peter Verdée Peter Verdée (compensates Charles Pence)	FR [q2] [30h] [2 Credits]	X	X
⊗ LSC2220	Philosophy of science	Alexandre Guay	EN [q2] [30h] [2 Credits]	X	X
⊗ LFILO2003E	Ethics in the Sciences and technics (sem)	Alexandre Guay (compensates Charles Pence) Hervé Jeanmart René Rezsóhazy	FR [q2] [15h+15h] [2 Credits]	X	X
⊗ LTHEO2840	Science and Christian faith	Benoît Bourguine Paulo Jorge Dos Santos Rodrigues	FR [q1] [15h] [2 Credits]	X	X

### o Cours au choix (19 credits)

#### ⊗ Cours au choix recommandés pour les finalités approfondie et spécialisée

⊗ LBBMC2101	Structural and functional biochemistry	Pierre Morsomme Patrice Soumillion	EN [q1] [36h+6h] [4 Credits]	X	
⊗ LCHM1353	Quantum Chemistry	Benoît Champagne	FR [q1] [22.5h+7.5h] [3 Credits]	X	
⊗ LCHM2122	Analysis physical methods of solids	Charles-André Fustin Yann Garcia	EN [q1] [30h] [3 Credits] > French-friendly		X
⊗ LCHM2143	Physical organic chemistry	Raphaël Robiette	EN [q1] [22.5h+7.5h] [3 Credits] > French-friendly		X
⊗ LCHM2151	Advanced mass spectrometry	Charles-André Fustin	EN [q1] [22.5h+7.5h] [3 Credits] > French-friendly	X	X
⊗ LCHM2152	NMR Complements	Michael Singleton	EN [q1] [22.5h+7.5h] [3 Credits] > French-friendly	X	X
⊗ LCHM2231	Chemistry and functionality of inorganic materials	Yann Garcia	EN [q2] [45h+15h] [6 Credits] > French-friendly		X
⊗ LCHM2241	Organic synthesis	Benjamin Elias Olivier Riant Michael Singleton	FR [q2] [45h+15h] [6 Credits] > French-friendly		X
⊗ LCHM2243	Chemistry of natural products	Michael Singleton Patrice Soumillion	EN [q1] [22.5h+7.5h] [3 Credits] > French-friendly		X
⊗ LCHM2244	Medicinal chemistry	Raphaël Frédéric Quentin Spillier (compensates Didier Lambert)	EN [q2] [22.5h+7.5h] [3 Credits] > French-friendly		X
⊗ LCHM2246	Nuclear chemistry	Pascal Froment	FR [q1] [22.5h+7.5h] [3 Credits] > English-friendly	X	X
⊗ LCHM2247	Supramolecular chemistry	Charles-André Fustin Michael Singleton	EN [q2] [22.5h+7.5h] [3 Credits] > French-friendly		X

				Year	
				1	2
✘ LCHM2251	Structural chemistry by diffraction methods	Yaroslav Filinchuk	EN [q1] [22.5h+7.5h] [3 Credits] > French-friendly		X
✘ LCHM2252	Crystal engineering and crystallization processes	Tom Leysens	EN [q2] [45h+15h] [6 Credits] > French-friendly		X
✘ LCHM2260	Electrochemical Energy storage	Alexandru Vlad	EN [q1] [22.5h] [3 Credits] > French-friendly		X
✘ LCHM2261A	Polymer Chemistry and Physical Chemistry (part 1 : Polymer Chemistry)	Charles-André Fustin Jean-François Gohy Alain Jonas	EN [q1] [22.5h+7.5h] [3 Credits] > French-friendly		X
✘ LCHM2261B	Polymer Chemistry and Physical Chemistry (part 2 : Polymer Physical Chemistry)	Charles-André Fustin Jean-François Gohy Alain Jonas	EN [q1] [22.5h+7.5h] [2 Credits] > French-friendly		X
✘ LCHM2281	Photochemistry	Ludovic Troian-Gautier	EN [q2] [22.5h+7.5h] [3 Credits] > French-friendly	X	X
✘ LMAPR2012	Polymers for advanced technologies	Sophie Demoustier Karine Glinel Karine Glinel (compensates Jean-François Gohy) Bernard Nysten	EN [q2] [45h+15h] [5 Credits] > French-friendly		X
✘ LMAPR2016	Project in Polymer Science	Charles-André Fustin Alain Jonas	EN [q2] [0h+45h] [5 Credits] > French-friendly		X
✘ LBIR1362	Environmental Economics	Frédéric Gaspard	FR [q2] [30h+7.5h] [3 Credits]		X
✘ LEPL1803	Economy	Olivier Daxhelet Julien Hendrickx	FR [q2] [30h+30h] [5 Credits]	X	X
✘ LEPL2212	Financial performance indicators	Anne-Catherine Provost	EN [q2] [30h+5h] [4 Credits] > French-friendly	X	X
✘ LEPL2214	Law, Regulation and Legal Context	Vincent Cassiers Werner Derycke	FR [q1] [30h+5h] [4 Credits]	X	X
✘ LDROP2102	Droits intellectuels et nouvelles technologies	Alain Strowel	FR [q2] [30h] [5 Credits]	X	X

#### ✘ Cours au choix recommandés pour la finalité didactique

✘ LSCI2330	Séminaire de recherche en didactique des sciences	Myriam De Kesel (coord.) Jim Plumet	FR [q2] [15h+30h] [5 Credits]	X	X
✘ LGEO2330	Séminaire de didactique de la géographie		FR [q2] [0h+30h] [5 Credits] $\Delta$	X	
✘ LAGRE2310	Micro-teaching exercises	Marc Blondeau Pascalina Papadimitriou	FR [q1 or q2] [15h] [2 Credits]	X	X
✘ LAGRE2221	Learning and teaching with new technologies	Sandrine Decamps	FR [q1] [15h+15h] [2 Credits]	X	X
✘ LMAT2330	Seminar on the teaching of mathematics	Enrico Vitale	FR [q1+q2] [15h+30h] [4 Credits]	X	X

## LIST OF FOCUSES

Three focused orientations are proposed that should be selected in view of your professional intentions at the end of your studies:

- « in-depth chemistry »: internship will be realized in a research laboratory ;
- « specialized : chemical industry »: internship will be realized in a company active in the chemical field ;
- « didactic »: this direction leads to the teaching profession.

However, this focus is not limiting for your future professional career as it only concerns 30 credits; employment opportunities and your future choices will be equally important.

- > [Research Focus](#) [ en-prog-2023-chim2m-lchim200a ]
- > [Teaching Focus](#) [ en-prog-2023-chim2m-lchim200d ]
- > [Professional Focus : Industrial Chemistry](#) [ en-prog-2023-chim2m-lchim200s ]

## RESEARCH FOCUS [30.0]

- Mandatory
- ⊗ Optional
- △ Not offered in 2023-2024
- ⊖ Not offered in 2023-2024 but offered the following year
- ⊕ Offered in 2023-2024 but not the following year
- △ ⊕ Not offered in 2023-2024 or the following year
- Activity with requisites
- 🌐 Open to incoming exchange students
- 🚫 Not open to incoming exchange students
- [FR] Teaching language (FR, EN, ES, NL, DE, ...)

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

Year

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### Content:

⊗ LCHM2295	Stage de recherche (hors UCLouvain)		EN [q2] [] [30 Credits] 🌐 > French-friendly	X	
⊗ LCHM2285	Stage de recherche dans un laboratoire UCLouvain		EN [q2] [] [15 Credits] 🌐 > French-friendly	X	
⊗ LCHM2286	Supplements of practical work	Yann Garcia	EN [q2] [0h+180h] [15 Credits] 🌐 > French-friendly	X	

## TEACHING FOCUS [30.0]

**IMPORTANT NOTE:** In accordance with article 138 para. 4 of the decree of 7 November 2013 concerning higher education and the academic organisation of studies, teaching practice placements will not be assessed in the September session. Students are required to make every effort to successfully complete the teaching practice in the June session, subject to having to retake the year.

- Mandatory
- ⊗ Optional
- △ Not offered in 2023-2024
- ⊖ Not offered in 2023-2024 but offered the following year
- ⊕ Offered in 2023-2024 but not the following year
- △ ⊕ Not offered in 2023-2024 or the following year
- Activity with requisites
- 🌐 Open to incoming exchange students
- 🚫 Not open to incoming exchange students
- [FR] Teaching language (FR, EN, ES, NL, DE, ...)

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

## o Content:

## o Module concevoir, planifier et évaluer des pratiques d'enseignement et d'apprentissage

o LSCI2320	Didactics and epistemology of science	Myriam De Kesel (coord.) Gabriel Dias de Carvalho Junior Stéphanie Wilmet	FB [q1] [22.5h] [2 Credits] 🌐	X	X
o LCHM2310	Teaching internships in chemistry (including the internship integration seminar)	Marc de Wergifosse	FB [q1+q2] [15h+40h] [7 Credits] 🌐	X	X
o LCHM2340	Didactics and epistemology of chemistry	Marc de Wergifosse (coord.) Nathalie Matthys Stéphanie Wilmet	FB [q1+q2] [37.5h] [4 Credits] 🌐	X	X
o LAGRE2220	General didactics and education to interdisciplinarity	Stéphane Colognesi Severine De Croix Myriam De Kesel Jean-Louis Dufays Anne Ghyssele Véronique Lemaire Benoît Vercruyse	FB [q1+q2] [37.5h] [3 Credits] 🌐	X	X

## o Une activité à choisir parmi (4 credits)

⌘ LBIO2340	Didactics and Epistemology of Biology	Myriam De Kesel	FB [q1+q2] [37.5h+0h] [4 Credits] 🌐	X	X
⌘ LPHYS2471	Didactics and Epistemology of Physics	Gabriel Dias de Carvalho Junior	FB [q1+q2] [37.5h] [4 Credits] 🌐	X	X
⌘ LMAT2320A	Didactique et épistémologie de la mathématique (en ce compris le stage d'écoute)	Cécile Coyette Sonia Ghorbal Laure Ninove	FB [q1+q2] [37.5h+10h] [4 Credits] 🌐	X	X
⌘ LGEO2320A	Didactique et épistémologie de la géographie (en ce compris le stage d'écoute)	Marie-Laurence De Keersmaecker	FB [q1] [37.5h+10h] [4 Credits] 🌐	X	X

## o Module comprendre et analyser l'institution scolaire et son contexte

## o Séminaire d'observation et d'analyse de l'institution scolaire et de son contexte (en ce compris le stage d'observation) (4 credits)

Choisir 1 des activités suivantes. Le cours et le séminaire doivent être suivis au même quadrimestre.

⌘ LAGRE2120P	Observation et analyse de l'institution scolaire et de son contexte (en ce compris le stage d'observation)	Vincent Dupriez Antoine Lecat (compensates) Branka Cattonar	FB [q1] [22.5h+25h] [4 Credits] 🌐		X
⌘ LAGRE2120Q	Observation et analyse de l'institution scolaire et de son contexte (en ce compris le stage d'observation)	Vincent Dupriez Antoine Lecat (compensates) Branka Cattonar	FB [q2] [22.5h+25h] [4 Credits] 🌐		X
o LAGRE2400	See specifications in french	Mathias El Berhoumi (compensates) Xavier Delgrange Hervé Pourtois (coord.) Pierre-Etienne Vandamme	FB [q2] [20h] [2 Credits] 🌐	X	X

## o Module animer un groupe et travailler en équipe

## o Comprendre l'adolescent en situation scolaire, gérer la relation interpersonnelle et animer le groupe classe (4 credits)

Choisir 1 des activités suivantes.

⌘ LAGRE2020P	Comprendre l'adolescent en situation scolaire, Gérer la relation interpersonnelle et animer le groupe classe.	Baptiste Barbot Véronique Leroy Nathalie Roland	FB [q2] [22.5h+22.5h] [4 Credits] 🌐		X
⌘ LAGRE2020Q	Comprendre l'adolescent en situation scolaire, Gérer la relation interpersonnelle et animer le groupe classe.	Baptiste Barbot Véronique Leroy Nathalie Roland	FB [q2] [22.5h+22.5h] [4 Credits] 🌐		X





**PROFESSIONAL FOCUS : INDUSTRIAL CHEMISTRY [30.0]**

- Mandatory
- ⊗ Optional
- △ Not offered in 2023-2024
- ⊖ Not offered in 2023-2024 but offered the following year
- ⊕ Offered in 2023-2024 but not the following year
- △ ⊕ Not offered in 2023-2024 or the following year
- Activity with requisites
- 🌐 Open to incoming exchange students
- 🌐 Not open to incoming exchange students
- [FR] Teaching language (FR, EN, ES, NL, DE, ...)

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

Year

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**o Content:**

● LCHM2275	Stage en entreprise		EN [q2] [] [30 Credits] 🌐 > French-friendly	X	
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**OPTIONS**

- > [Optional courses](#) [ en-prog-2023-chim2m-lsc100o ]  
 > [INEO \(ex-CPME\), Interdisciplinary training in entrepreneurship](#) [ en-prog-2023-chim2m-lboe955o ]

**OPTIONAL COURSES**

- Mandatory
- ⊗ Optional
- △ Not offered in 2023-2024
- ⊖ Not offered in 2023-2024 but offered the following year
- ⊕ Offered in 2023-2024 but not the following year
- △ ⊕ Not offered in 2023-2024 or the following year
- Activity with requisites
- 🌐 Open to incoming exchange students
- 🌐 Not open to incoming exchange students
- [FR] Teaching language (FR, EN, ES, NL, DE, ...)

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

These credits are not counted within the 120 required credits.

Year

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**o Content:**

⊗ LSST1001	IngénieursSud	Stéphanie Merle Jean-Pierre Raskin (coord.)	FR [q1+q2] [15h+45h] [5 Credits] 🌐	X	X
⊗ LSST1002M	Information and critical thinking - MOOC	Myriam De Kesel Jean-François Rees	FR [q2] [30h+15h] [3 Credits] 🌐	X	X

## INEO (EX-CPME), INTERDISCIPLINARY TRAINING IN ENTREPRENEURSHIP

- Mandatory
- ⊗ Optional
- △ Not offered in 2023-2024
- ⊙ Not offered in 2023-2024 but offered the following year
- ⊕ Offered in 2023-2024 but not the following year
- △ ⊕ Not offered in 2023-2024 or the following year
- Activity with requisites
- ⊕ Open to incoming exchange students
- ⊗ Not open to incoming exchange students
- (FR) Teaching language (FR, EN, ES, NL, DE, ...)

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

This option lasts 2 years and is integrated into more than 30 Masters programs in 9 faculties/schools of the UCLouvain. The choice of this option implies the realization of an interfaculty dissertation (in team) on a business creation project. Access is limited to students selected on the basis of a portfolio. More info. via <https://uclouvain.be/en/study/ineo>

Admission to this CPME option is subject to selection, please submit your application in due time <https://uclouvain.be/fr/etudier/ineo/admission.html>

Courses in this option cannot be taken individually outside of the option.

From 20 to 25 credit(s)

Year

1 2

### Content:

⊗ LINEO2021	<b>Financer son projet</b> Ce cours est obligatoire pour les étudiants qui n'ont pas de prérequis en gestion (les étudiants qui ont suivi la mineure en gestion, ou la mineure en esprit d'entreprendre sont dispensés de ce cours).	Yves De Rongé Philippe Grégoire (compensates Yves De Rongé)	FR [q2] [30h+15h] [5 Credits] ⊕	X	
● LINEO2001	<b>Théorie de l'entrepreneuriat</b>	Frank Janssen	FR [q1] [30h+20h] [5 Credits] ⊕	X	
● LINEO2002	<b>Aspects juridiques, économiques et managériaux de la création d'entreprise</b>	Yves De Cordt Marine Falize	FR [q1] [30h+15h] [5 Credits] ⊕	X	
● LINEO2004	<b>Séminaire d'approfondissement en entrepreneuriat</b>	Frank Janssen	FR [q2] [30h+15h] [5 Credits] ⊕	X	
● LINEO2003	<b>Plan d'affaires et étapes-clefs de la création d'entreprise</b>	Frank Janssen	FR [q2] [30h+15h] [5 Credits] ⊕	X	X

## Supplementary classes

**To access this Master, students must have a good command of certain subjects. If this is not the case, students must take supplementary classes chosen by the faculty to satisfy course prerequisites.**

In some cases, a complementary program (maximum 60 ECTS) consisting of Bachelor courses in Chemistry will be required, in coordination with the Academic Advisor, and based on the student's previous background and training.

For example, students with a Bachelor degree in Chemistry from a Higher non-university education, wishing to start the Master in Chemistry, will have to take a series of courses to complement their initial formation, typically following the scheme hereunder :

- Mandatory
- ⊗ Optional
- △ Not offered in 2023-2024
- ⊙ Not offered in 2023-2024 but offered the following year
- ⊕ Offered in 2023-2024 but not the following year
- △ ⊕ Not offered in 2023-2024 or the following year
- Activity with requisites
- 🌐 Open to incoming exchange students
- 🌐 Not open to incoming exchange students
- [FR] Teaching language (FR, EN, ES, NL, DE, ...)

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

⊗ LMAT1101	<a href="#">Mathematics 1</a>	Pedro Dos Santos Santana Forte Vaz	FR [q1] [30h+20h] [4 Credits] 🌐
⊗ LMAT1102	<a href="#">Mathematics 2</a>	Augusto Ponce	FR [q2] [30h+30h] [4 Credits] 🌐
⊗ LCHM1252	<a href="#">Elements of physical molecular chemistry</a>	Marc de Wergifosse	FR [q2] [45h+22.5h] [6 Credits] 🌐
⊗ LCHM1331	<a href="#">Inorganic chemistry I</a>	Sophie Hermans	FR [q1] [37.5h+7.5h] [4 Credits] 🌐
⊗ LCHM1321	<a href="#">Analytical chemistry 1</a>	Christine Dupont Yann Garcia	FR [q1] [40h] [5 Credits] 🌐
⊗ LCHM1351	<a href="#">Physical chemistry</a>	Tom Leyssens	FR [q1] [45h+19h] [5 Credits] 🌐
⊗ LCHM1311	<a href="#">Environmental chemistry</a>	Alexandru Vlad	EN [q2] [30h] [4 Credits] 🌐
⊗ LCHM1319	<a href="#">Material's chemistry</a>	Charles-André Fustin Alexandru Vlad	FR [q2] [45h] [5 Credits] 🌐
⊗ LCHM1391	<a href="#">Project</a>	Benjamin Elias Charles-André Fustin Raphaël Robiette Ludovic Troian-Gautier Alexandru Vlad	FR [q1] [45h+45h] [6 Credits] 🌐
⊗ LCHM1341	<a href="#">Organic chemistry III</a>	Raphaël Robiette	FR [q2] [30h+15h] [4 Credits] 🌐
⊗ LCHM1253	<a href="#">Elements of crystallography</a>	Yaroslav Filinchuk	FR [q1] [30h+10h] [4 Credits] 🌐
⊗ LCHM1254	<a href="#">Elements of molecular spectroscopy</a>	Sophie Hermans	FR [q2] [30h+20h] [4 Credits] 🌐
⊗ LANG1863	<a href="#">English for Students in Sciences (Upper-Intermediate level)</a>	Ahmed Adriouèche (coord.) Catherine Avery (coord.) Amandine Dumont (coord.) Sandrine Jacob (coord.) Nevin Serbest Florence Simon Françoise Stas (coord.)	EN [q1 or q2] [30h] [3 Credits] 🌐

## Course prerequisites

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There are no prerequisites between course units (CUs) for this programme, i.e. the programme activity (course unit, CU) whose learning outcomes are to be certified and the corresponding credits awarded by the jury before registration in another CU.

## The programme's courses and learning outcomes

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For each UCLouvain training programme, a [reference framework of learning outcomes](#) specifies the skills expected of every graduate on completion of the programme. Course unit descriptions specify targeted learning outcomes, as well as the unit's contribution to reference framework of learning outcomes.

## CHIM2M - Information

### Access Requirements

Master course admission requirements are defined by the French Community of Belgium Decree of 7 November 2013 defining the higher education landscape and the academic organisation of courses.

General and specific admission requirements for this programme must be satisfied at the time of enrolling at the university.

Unless explicitly mentioned, the bachelor's, master's and licentiate degrees listed in this table or on this page are to be understood as those issued by an institution of the French, Flemish or German-speaking Community, or by the Royal Military Academy.

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

#### SUMMARY

- > [General access requirements](#)
- > [Specific access requirements](#)
- > [University Bachelors](#)
- > [Non university Bachelors](#)
- > [Holders of a 2nd cycle University degree](#)
- > [Holders of a non-University 2nd cycle degree](#)
- > [Access based on validation of professional experience](#)
- > [Access based on application](#)
- > [Admission and Enrolment Procedures for general registration](#)

### Specific access requirements

Since this program is taught in English, no prior proof of French language proficiency is required, except for students wishing to access the didactic program who must provide proof of a CEFR level C1 proficiency. Students who wish to be admitted on the basis of a dossier (see tables below) are invited to consult the [criteria for the evaluation of application](#).

#### University Bachelors

Diploma	Special Requirements	Access	Remarks
<b>UCLouvain Bachelors</b>			
<a href="#">Bachelor in Chemistry</a>		Direct access	
<a href="#">Bachelor in Biology</a>	S'il à suivi la Mineure en sciences chimiques	Access with additional training	In some cases, the UCLouvain Enrolment Office, after reviewing their online enrolment or re-enrolment application, will ask the students concerned to provide an enrolment authorisation from the faculty/ school.
<a href="#">Bachelor in Bioengineering</a>		Access based on application	
<b>Others Bachelors of the French speaking Community of Belgium</b>			
		Direct access	
<b>Bachelors of the Dutch speaking Community of Belgium</b>			
		Access with additional training	
<b>Foreign Bachelors</b>			
		Access based on application	

#### Non university Bachelors

> Find out more about [links](#) to the university

Diploma	Access	Remarks
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BA en chimie, orientation biochimie - crédits supplémentaires entre 45 et 60  
 BA en chimie, orientation biotechnologie - crédits supplémentaires entre 45 et 60  
 BA en chimie, orientation chimie appliquée - crédits supplémentaires entre 45 et 60  
 BA en chimie, orientation environnement - crédits supplémentaires entre 45 et 60

Les enseignements supplémentaires éventuels peuvent être consultés dans le [module complémentaire](#).

Type court

## Holders of a 2nd cycle University degree

Diploma	Special Requirements	Access	Remarks
<b>"Licenciés"</b>			
		Direct access	
<b>Masters</b>			
		Direct access	

## Holders of a non-University 2nd cycle degree

### Access based on validation of professional experience

> It is possible, under certain conditions, to use one's personal and professional experience to enter a university course without having the required qualifications. However, validation of prior experience does not automatically apply to all courses. Find out more about [Validation of priori experience](#).

### Access based on application

Access based on application : access may be granted either directly or on the condition of completing additional courses of a maximum of 60 ECTS credits, or refused.

The first step in the procedure is to submit a file online ( see <https://uclouvain.be/en/study/inscriptions/futurs-etudiants.html>).

Students who wish to be admitted on the basis of a dossier are invited to consult the [criteria for the evaluation of application](#).

## Admission and Enrolment Procedures for general registration

## Specific professional rules

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Successful completion of the master's course with **teaching focus** leads to the award of the master's degree with teaching focus and the title of secondary school education specialist.

The [Réforme des Titres et Fonctions](#) ("Titles and Functions Reform"), in force since 1 September 2016, is intended to harmonise the titles, functions and pay scales of basic and secondary education professionals in French Community of Belgium networks.

It also aims to guarantee the priority of preferred titles over minimum titles and to establish a regime for titles in short supply.

AESS holders can learn which functions they can carry out and the pay scales from which they can benefit by [clicking here](#).

The university cannot be held responsible for any problems that students may encounter at a later date with a view to a teaching appointment in the French Community of Belgium.

## Teaching method

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The program has been built as to

- maintain a reasonable volume of activities, compatible with the realization of a master thesis and a research training that properly prepares for the doctorate.
- promote interdisciplinarity (integrated practical works) and develop scientific communication skills (bibliographic research, presentation of seminars in French and English).

Students of the Didactic Finality may pursue a didactic deepening in biological, mathematical, physical or geographic sciences. For this specialization a in depth knowledge of the French language is required.

## Evaluation

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***The evaluation methods comply with the [regulations concerning studies and exams](#). More detailed explanation of the modalities specific to each learning unit are available on their description sheets under the heading "Learning outcomes evaluation method".***

The student will be evaluated mainly on the basis of his or her personal work (reading, consulting bibliographic databases and references, writing reports, presenting seminars, dissertation, internship, etc.).

The student will also be assessed on his capacity to assimilate the various courses. Where possible, evaluation will be continuous, including regular "open book" tests. The evaluation of the thesis will be done in two stages: during a progress report meeting and during the final presentation.

In order to obtain the average note, the grades obtained for the teaching units are weighted by their respective credit value.

If a student enrolled in a January examination has not been able to present the examination for duly justified reasons ("force majeure"), he may apply to the President of the Jury for permission to present the examination in June. The President of the Jury shall judge the relevance of the application and, if the course holder agrees, may authorize the student to present the examination in June.

## Mobility and/or Internationalisation outlook

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Two mobility schemes (30 credits) are provided for in the Master's in-depth program:

- Erasmus-Socrates or Mercator research internship outside Belgium, or internship in another Belgian institution, including courses or practical work (according to agreements to be negotiated with the host institution)
- An internship (15 credits) in a UCLouvain laboratory different from the one where the thesis will be carried out, and practical work complements to familiarize the student with the main techniques in the different orientations of chemistry (15 credits, 180 hours, or 4.5 weeks).

In the specialised master's program, the same principle of mobility of 30 or 15 credits will be possible, with a preference for an internship in an industrial company, Belgian or foreign.

The mobility is ideally performed in the 2nd term of the 1st year. Master thesis and complementary training are the focus of the 2nd year of the master degree.

The list of destinations as well as the arrangements for organizing international mobility are available at <https://uclouvain.be/fr/facultes/sc/programmes-d-echange-d-etudiants.html>



## Possible trainings at the end of the programme

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Whatever focus is chosen, the Master in Chemistry gives direct access to the doctorate in science.

## Contacts

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### Additional information

You will find additional information

- on the website of the School of Chemistry <https://uclouvain.be/fr/facultes/sc/chim>
- on the website of the Faculty of Science <https://uclouvain.be/en/faculties/sc>

### Curriculum Management

Entity

Structure entity

Denomination

Faculty

Sector

Acronym

Postal address

SST/SC/CHIM

(CHIM)

Faculty of Science (SC)

Sciences and Technology (SST)

CHIM

Place Louis Pasteur 1 - bte L4.01.07

1348 Louvain-la-Neuve

Tel: +32 (0) 10 47 40 45 - Fax: +32 (0) 10 47 28 36

<https://uclouvain.be/fr/facultes/sc/chim>

Website

Academic supervisor: [Tom Leyssens](#)

Jury

- President: [Jean-François Gohy](#)
- Secretary and study advisor: [Tom Leyssens](#)

Useful Contact(s)

- Administrative manager for the student's annual program: [Fatuma Tapatondele](#)

