Université de Lille

# Biorefinery

Master Chimie

Durée
2 ans

Composante
Faculté des sciences et technologies

Langue(s) d'enseignement
Français

## Présentation

The Biorefinery course in the Master's in Chemistry programme aims to train specialists capable of addressing issues related to biomass recovery, innovating in biomass conversion processes and contributing to the replacement of processes that use fossil resources. They will provide solutions for the implementation of new reactions involving molecules derived from biomass processing. To do this, they will master :

- the composition of different types of biomass and how they are grown, crop rotation, etc.
- the principles of the bioeconomy in order to establish the 'right' biorefinery for the local environment.
- the chemical, physical and biotechnological means of transforming biomass (plants, wood, algae) into its constituent components (cellulose, hemicellulose, lignin),
- the valorisation of the components and functional groups of these molecules into biofuels and/or chemical synthons.

Upon completion of this programme, graduates can apply for a PhD or a position in industry.

### Savoir-faire et compétences

The gradual replacement of processes involving fossil-based molecules with green synthons involves the creation of biorefineries. The implementation of these new entities requires knowledge of the local environment, the nature and potential of the various types of biomass available, crop rotation, etc. The aim of the Biorefinery Master's programme is therefore to provide students with the skills they need to meet the new challenges of the 21st century:

- Project management, which will be applied both in the Master's thesis and in the bibliographic projects and mini-projects proposed in the course.
- Proficiency in English, which will be the official language of the Master's programme, both in teaching and in the various defences and examinations.
- Teamwork, which will be enhanced by the fact that students will be immersed throughout the year in an international and multicultural environment, thanks to the diversity of their colleagues, lecturers and industry professionals involved in the Master's programme.

All of this should enable students to easily integrate into the world of tomorrow's bioeconomy and biorefineries.

### Les + de la formation

The programme is supported by the UCCS laboratory (Catalysis and Solid State Chemistry Unit).

A master's degree in a stimulating scientific environment within the 'Environmental sciences' graduate programme.

## Organisation

### Organisation

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The master's programme is organised into different knowledge and skills blocks (BCC):
BCC - Synthesize and Transform the Molecule or Material
BCC - Analyze and Characterize the Molecule or Material
BCC – Managing a project and a bibliographic project or Define a Personal and Professional Project
BCC - Understand how to produce different types of biomass
BCC - Mastering the various treatments (thermal and mechanical) applied during biomass processing
BCC - Mastering ad hoc catalytic tools for obtaining target molecules or energy vectors

## Stages

**Stage :** Obligatoire

2 stages obligatoires : 1 au S2 et 1 au S4.

# Admission

## Conditions d'admission

**For European students an no EEF students:** Application: Submit your application by following this link: https://monmaster.gouv.fr
**For EEF students:** Etudes en France https://www.campusfrance.org/fr/candidature-procedure-etudes-en-france

**Prerequisite:** Bachelor's degree in Chemistry

# Et après

## Poursuite d'études

Graduates will be able to apply for a PhD in the field of biomass utilisation in the broadest sense. As the degree is multidisciplinary, there is a wide range of potential topics and sources of funding.

## Insertion professionnelle

The Master's programme is brand new (first cohort graduated in June/September 2017). Among the students who graduated from the Master's 2 Biorefinery programme in June 2017, half went on to do a PhD and a third found their first job following their end-of-study internships. After completing their PhD, they will be able to apply for positions such as:
- R&D engineer in industry,
- Research laboratory manager,
- Project engineer,
- Lecturer/CNRS researcher, etc.

Careers related to the bioeconomy and biorefineries are new and booming in today's professional environment, and are of course not limited to the list above.

Find the studies and surveys conducted by the ODiF (Observatoire de la Direction des Formations) on the professional integration of Master's graduates at: https://odif.univ-lille.fr.

# Infos pratiques

## Autres contacts

**Contact administratif :**
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**Contact pédagogique :**
FST-master-chimie-bioref@univ-lille.fr

## Lieu(x)

Villeneuve d'Ascq - FST

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## Campus

Campus Cité scientifique

## En savoir plus

Faculté des Sciences et Technologies - FST
https://sciences-technologies.univ-lille.fr/