

Practical information

Reminder: Students applying to Master 2 BEB do not apply to Bioceb even though they will share courses with students from Bioceb.

Application details

Applications for Masters courses at the Université Paris-Saclay will open from January 2025.

You will find more information on our website in January:

<https://www.universite-paris-saclay.fr>

Application dates:

FROM APRIL TO JUNE

Contacts

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Locations

S3 at Palaiseau, France & Institut Jean-Pierre Bourgin, Versailles, France (only option for M2BEB not admitted in Bioceb)

S3 at Aalto - Espoo, Finland

S3 at ULiège - Gembloux, Belgium

Tuition fees

Bioceb students:

This master's programme offers additional services. This programme requires specific tuition fees and participations costs in addition to the mandatory fees:

<https://www.universite-paris-saclay.fr/admission/droits-dinscription>

<http://www.bioceb.eu/spip.php?article14>

Non Bioceb students: <https://www.universite-paris-saclay.fr/admission/droits-dinscription>

French Partner Research Laboratories

Institut Jean-Pierre Bourgin (IJPB)

Institut des Sciences des Plantes de Paris-Saclay (IPS2)

Ecologie fonctionnelle et écotoxicologie des agroécosystèmes (ECOSYS)

Génie et Microbiologie des Procédés Alimentaires (GMPA)

Microbiologie de l'Alimentation au Service de la Santé Humaine (MICALIS)

Ingénierie Procédés Aliments (GENIAL)

AgroRessources Fractionnement et Environnement (FARE)

Institut de Chimie Moléculaire de Reims (ICMR).



Master 2

Biomass Engineering for Bioeconomy (BEB)

+ Included in the European Master in Biological and Chemical Engineering for a Sustainable Bioeconomy (Bioceb) Erasmus Mundus Joint Master Degree coordinated by AgroParisTech

+ Full-time education

+ Language: English

Important information: The Master 2 Biomass Engineering for the Bioeconomy includes students of Bioceb (a two-year programme M1+M2) spending a semester in AgroParisTech during the programme. It is also open to non-Bioceb students who can apply after their M1.

Objectives

- + A top-level education in chemical and biological engineering applied to the design and development of bio-based products and processes;
- + A training to systemic approaches, from the biological cell to macroeconomic systems;
- + An insertion in the professional world, through innovation, entrepreneurship and dissemination;
- + A modular format allowing each student to build-up his/her specific curriculum with a M2 specialisation in one major field of biotechnologies: bioprocesses design & up-scaling, biomass engineering & valorisation, bioproducts design & production;
- + An in-depth theoretical and practical knowledge of plant biochemical diversity and of the biotechnological tools (genetic modification, synthetic biology, innovative extraction strategies according to green chemistry principles) supporting innovation in bioeconomy;
- + Implementation of industry-driven approaches.

Prerequisites

For students applying to the **Master 2 BEB** but not admitted in Bioceb:

- + **Bachelor's degree or equivalent degree of at least 180 ECTS + M1 degree** or equivalent degree of at least 60 ECTS in engineering or science, in at least one discipline related to biology: biotechnology, biochemistry, microbiology, biophysics, bioprocess engineering, molecular biology;
- + Good level in Mathematics;
- + Demonstrated **English language proficiency - B2 advanced**.

For students admitted into the two-year (M1+M2) programme Bioceb: When selected, students are admitted to first year (=M1) and the second year (=M2), that are inseparable.

Skills

The students will be able to:

- + Tackle the challenges related to the deployment of the bioeconomy across the world ;
- + Design processes and products ensuring a sustainable global use of biological resources ;
- + Perform a multi-criteria assessment of bio-based value chains (from plant resources to manufactured bioproducts) ;
- + Implement a scientific approach and design an experimental plan to address a research question ;
- + Work in team and carry out collaborative projects in multicultural environments ;
- + Manage innovation ;
- + Adapt to local context and socio-economic demand while integrating global challenges.

Career prospects

Graduates will be ensured career opportunities all over the world in Research and Higher education organisations, as well as in private companies. They will more particularly access positions as:

- + Research scientist in chemical and biological engineering;
- + Bioprocess / biomaterial / biocatalyst engineer;
- + Research and Innovation Project manager;
- + Business developer for Bio-based industries,
- + PhD student;
- + Start-up manager.

Master Syllabus

Please note: Bioceb offers 5 possible mobility tracks covering the two M1-M2 years, with joint activities organised for the whole cohort. Each track comprises three key pedagogic pillars: an academic programme (lectures, practice and visits), a green-line multidisciplinary project carried out over the three first semesters, and a master's thesis via internship. At the end of the programme, successful students are awarded a triple degree (according to their study track), i.e. National Master Degree certificates from the highly renowned European Partner Universities. For the details of the 5 mobility tracks and degrees awarded please consult Bioceb website: <http://www.bioceb.eu/>

Semester 1 of M2 is composed of the three optional tracks:

- + Track "Biomass engineering" at AgroParisTech (France) ;
- + Track "Bioprocesses" at University of Liège - ULiège (Gembloux, Belgium) ;
- + Track "Materials and biopolymers" at Aalto University (Finland).

Semester 2 of M2 consists in a master's thesis during a research internship.

M2 BEB students not admitted in Bioceb have only one option: the first semester at AgroParisTech (France) and the master's thesis during a research internship for the second semester. At the end of the M2, they are awarded the Master in Integrative Biology and Physiology (IBP), study track Biomass Engineering for Bioeconomy (BEB), delivered by the Université Paris-Saclay (UPSaclay), operated by AgroParisTech

		TEACHING UNITS
1 ST SEMESTER	AgroParisTech (30 ECTS) Only option for M2 BEB students not admitted in Bioceb	Specialized metabolites in biotechnologies
		Extraction and separation strategies in bioindustries: evolutions and innovations
		Biomolecules, Biomaterials, Bioenergies
		Bioeconomy
		Genetic manipulations of plant resources OR Cell factory optimisation
		Green line project - 3rd stage
	ULiège (30 ECTS) Only for M2 BEB students admitted in Bioceb, who were previously enrolled in M1 BEB. Not open to M2 BEB students not admitted in Bioceb	Practice of the chemistry of natural substances
		Portfolio (innovative economical activities development)
		Microbial biotechnology - applications
		Chemistry of bioenergy production
		Biological chemistry and corresponding processes engineering
		Green line project - 3rd stage
Aalto (30 ECTS) Only for M2 BEB students admitted in Bioceb, who were previously enrolled in M1 BEB. Not open to M2 BEB students not admitted in Bioceb	Polymer Synthesis	
	Polymer blends and composites	
	Plant biomass	
	Lignocellulose chemistry	
	Fibers and fibers products course	
	Cellulose-base fibers (Green line project - 3d stage)	
2 ND SEMESTER	Mandatory common to all tracks (30 ECTS)	Master's thesis during research internship