Université Paris-Saclay

Partager

Email destinataire :

Vous devez renseigner un email valide

Envoyer

Une erreur est survenue. Merci de réessayer ultérieurement

Le mail de partage a bien été envoyé.

Ajouter au comparateur

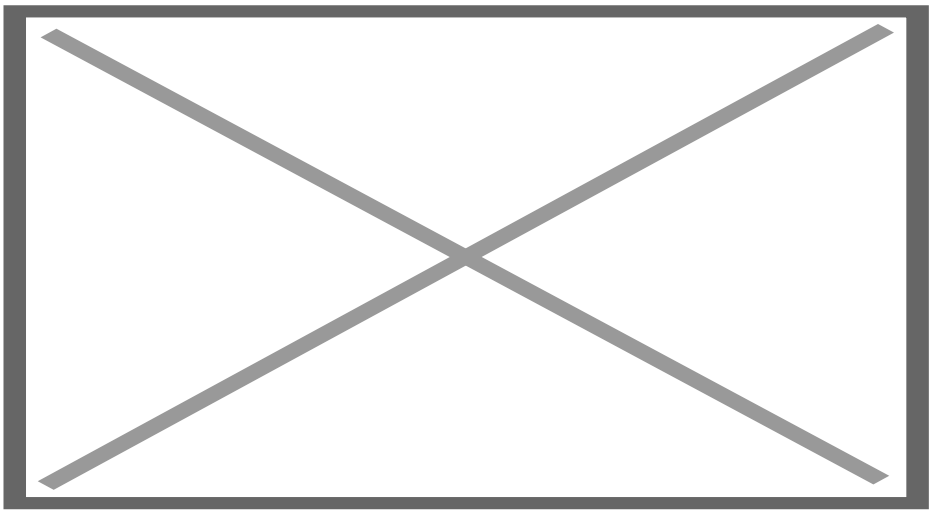
M1 Biomass Engineering for Bioeconomy

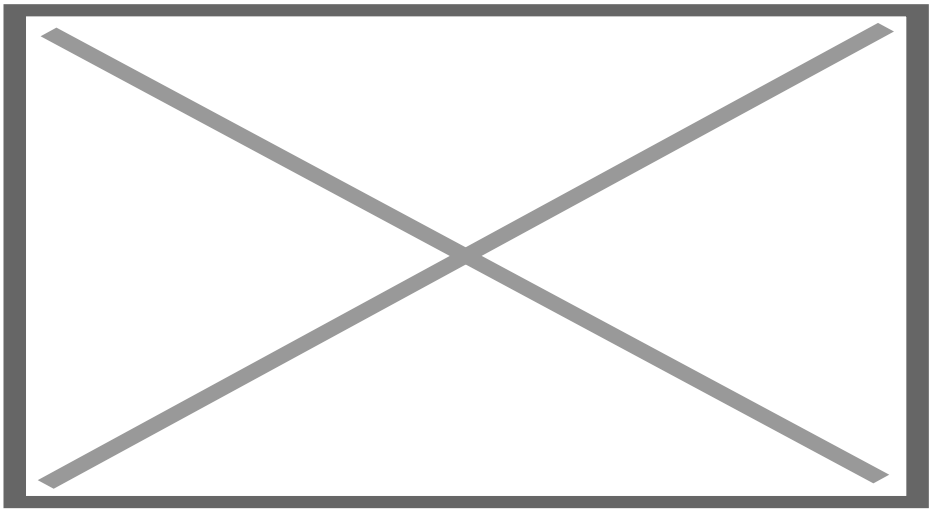
Master
Mention Biologie-AgroSciences
Régime(s) d'inscription
Formation initiale
Langue(s) d'enseignement
Anglais

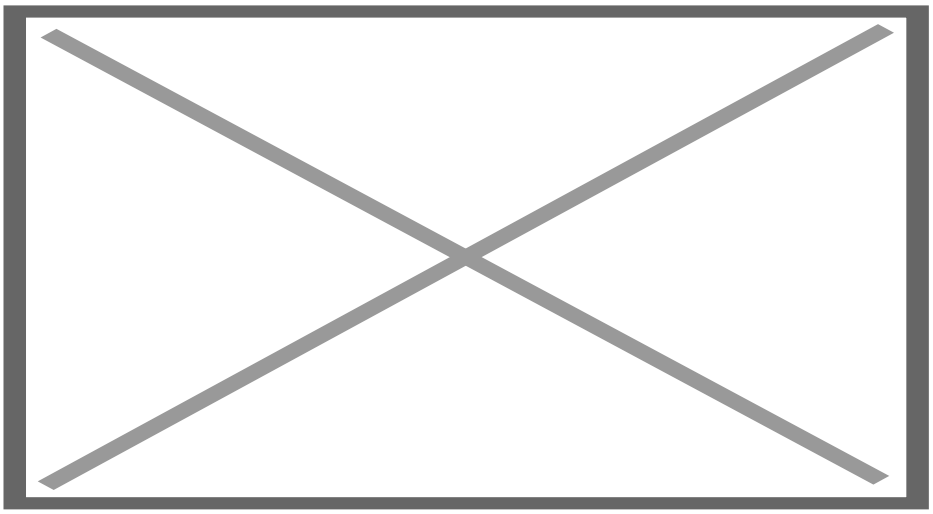
Bioceb (European Master in Biological and Chemical Engineering for a Sustainable Bioeconomy) is a 2-year joint master's program that trains future research and innovation managers to tackle the challenges related to the deployment of the bioeconomy worldwide. It addresses the needs of the growing bio-based industry sector for scientists aware of the markets and socio-economic contexts.

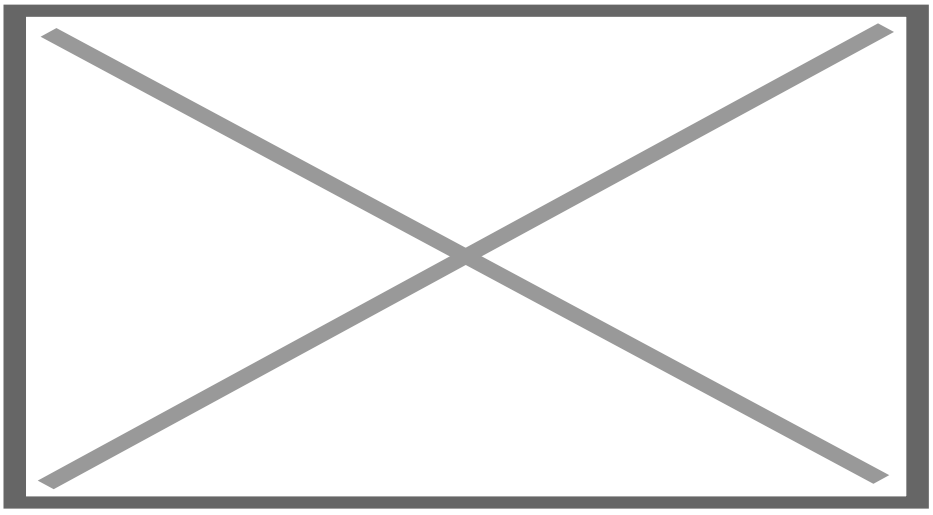
Bioceb arises from an interdisciplinary approach that combines chemistry, biology, economics, and environmental sciences, with cross-cutting skills including project management. Its modular construction promotes a cultural mix between students from different regions of the world and with various educational backgrounds. Bioceb was labelled “Erasmus Mundus Joint Master Degree” (EMJMD) by the European Commission in 2019 and renewed in 2025. The Master 1 Biomass Engineering for Bioeconomy (BEB) is part of the EMJM Bioceb, which is offered by a consortium of five European universities: Institut national des sciences et industries du vivant et de l’environnement (AgroParisTech)/Université Paris Saclay, Université de Reims Champagne-Ardenne (URCA), Université de Liège (ULiège) Belgium, Aalto University, Finland, Tallinn University of Technology (TalTech), Estonia.

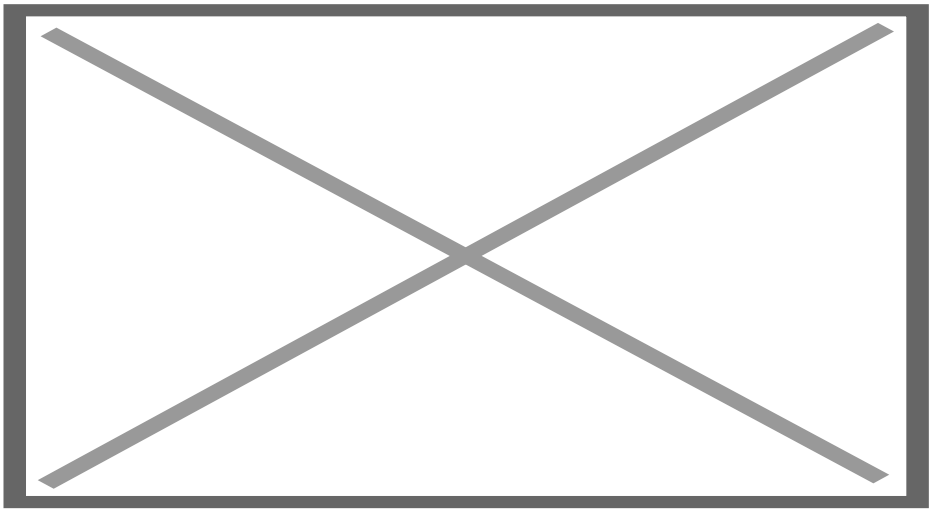
Télécharger la fiche détaillée
Je candidate











Informations

- Présentation
- Admission
- Programme

Présentation

Compétences

Scientific and technical skills:

? Double chemistry-biology competences, including knowledge of the principles of green chemistry and associated metrics, plant science with awareness of biodiversity, and disciplinary knowledge in biochemistry, molecular biology, and microbiology;

? Skills in process and materials engineering applied to biomass production and conversion into bio-based products and energy;

? Capacity to implement integrated multi-disciplinary approaches in order to design new sustainable routes for the valorisation of agro-resources or industrial waste;

? Skills in carrying out experiments in a scientific research approach for bioeconomy-related projects

Knowledge in environmental analysis: Knowledge of sustainable and cleaner production routes, Life Cycle Analysis (LCA) and applying green chemistry metrics leading to sustainable manufacturing in line with circular economy objectives;

Competences in socio-economics sciences: Awareness of the global diversity of bioeconomy models and biorefinery systems (biomass, transformation strategies and end-products markets) and their relationships with territories; understanding of the techno-economic and legal constraints associated to the development on bio-based products and bioprocesses;

Management skills:

? Skills in project engineering with knowledge of innovation processes and of the different stages leading to industrialization from the laboratory research step (technological readiness levels);

? Soft skills: ability to discuss with people from different cultural backgrounds and take into account social and ethical expectations, to interact within a group and exploit the diversity of skills to build up and carry out a project, to communicate and disseminate scientific results, to take risks and address challenges.

Objectifs pédagogiques de la formation

The joint first semester (S1) at URCA provides a multidisciplinary scientific knowledge base and a shared culture in the field of agro-resources and their conversion through biorefinery processes. The second semester (S2) allows the students to enrich their technical and scientific experience with cross-cutting approaches dealing with value-chain sustainability assessment, with a specific focus either on economics (AgroParisTech) or on green chemistry principles (TalTech). The third semester (S3) offers a specialization in one of the key biotechnology approaches of bioeconomy: biomass engineering (AgroParisTech), bioprocesses (ULiège) and bio-based products (Aalto). The fourth semester (S4) is dedicated to a R&D internship leading to a Master's thesis preparation and defence. The M1 BEB only includes Bioceb students spending the second semester in AgroParisTech. The M1 Biomass Engineering for Bioeconomy is delivered by the Université Paris Saclay and operated by AgroParisTech.Bioceb aims at providing top-level and up-to-date education in chemical and biological engineering applied to the design and development of bio-based products and processes. The objective is to provide all students with a solid multidisciplinary scientific background in biology, chemistry, and biotechnology, combined with a good knowledge of bio-based products markets, and value-chain sustainability assessement. Bioceb aims at training students to systemic approaches at different scales, from the biological cell to macroeconomic systems.The programme is built-up arround three key pedagological pillars: an academic programme (lecture and practice), a green-line multidisciplinary project carried out over the 2 years, and an internship. Bioceb has the ambition to favor the graduates' insertion in the professional world through a cross-cutting approach related to innovation, entrepreneurship, and dissemination. Thanks to Bioceb modular format, each student is allowed to build-up his/her specific curriculum with a specialization in one major field of biotechnologies, among bioprocesses design and up-scaling, biomass engineering and valorization, bioproducts design and production. **In this context, the objectives of the M1 Biomass Engineering for Bioeconomy is to provide knowledge on agro-resources and biorefinery combined with skills in value chain sustainability assessment and economics.**

Débouchés

Professionnels

Après un Master ou Master + Doctorat : ingénieur (recherche-développement, contrôle, production…) dans les domaines santé, pharmacie, agroalimentaire, biotechnologies, instruments et réactifs, cosmétique, dépollution et environnement

Après Master + Doctorat : chercheur ou enseignant-chercheur

Poursuite d’études

Biologie-AgroSciences
Master Biologie-AgroSciences
Les étudiants de cette mention peuvent se tourner vers la recherche à l’issue du M2
Cette orientation prépare en particulier aux activités de recherche appliquée, généralement exercées après un doctorat, que ce soit dans le milieu académique ou en R&D.

Agenda

Début de la formation (date indicative)
25/08/2026
Fin de la formation (date indicative)
30/06/2027
Admission

Voie d’accès

Chimie
Sciences de la vie et de la Terre

Capacité d’accueil

Places

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Public visé et prérequis

The Master Bioceb is a two-year EMJMD (M1+M2). Consequently, the students applying for the M1 commit to follow the M2. This Master comprises the track "Biomass Engineering for Bioeconomy" (BEB) of the University Paris-Saclay national Master Biologie, AgroSciences. The admission requirements for Bioceb are the following:
• BSc degree or equivalent degree of at least 180 ECTS in Engineering or Science, including a strong background in at least one discipline related to Biology: Biotechnology, Biochemistry, Microbiology, Biophysics, Bioprocess engineering, Molecular biology
• Preferred but non-mandatory: a complementary background in Chemistry, Physics, or Environmental sciences

• Demonstrated English language proficiency

- B2 advanced. The candidates are selected according to the excellence of their background and academic results as well as their motivation (professional project). The M2 BEB is open to non-Bioceb students.

Période(s) de candidature

Plateforme Inception

Du 01/01/2026 au 29/01/2026

Pièces justificatives

Obligatoires

Copie diplômes.

Scan of High School Diploma, undergraduate, postgraduate ...

Copie du passeport.

Translation of Diploma in english

Justificatifs (TOEFL, TOIC, attestation d'un enseignant…) d'un niveau d'une langue étrangère.

Proof of English Proficiency

Lettre de motivation.

Lettre de recommandation ou évaluation de stage.

Two reference letters

Liste récapitulative des 5 dernières années d'études mentionnant exclusivement l'année d'étude, l'établissement, la moyenne générale et la mention obtenue.

Official documents for the past five years if they are not covered by your last diploma

Tous les relevés de notes des années/semestres validés depuis le BAC à la date de la candidature.

Transcripts of record (and english translation, if needed)

Curriculum Vitae.

Facultatives

Dossier VAPP (obligatoire pour toutes les personnes demandant une validation des acquis pour accéder à la formation) https://www.universite-paris-saclay.fr/formation/formation-continue/validation-des-acquis-de-lexperience.

Document justificatif des candidats exilés ayant un statut de réfugié, protection subsidiaire ou protection temporaire en France ou à l'étranger (facultatif mais recommandé, un seul document à fournir) :
- Carte de séjour mention réfugié du pays du premier asile
- OU récépissé mention réfugié du pays du premier asile
- OU document du Haut Commissariat des Nations unies pour les réfugiés reconnaissant le statut de réfugié
- OU récépissé mention réfugié délivré en France
- OU carte de séjour avec mention réfugié délivré en France
- OU document faisant état du statut de bénéficiaire de la protection subsidiaire en France ou à l'étranger.

Programme

Matières	ECTS	Semestre	Cours	TD	TP	Cours-TD	Cours-TP	TD-TP	A distance	Projet	Tutorat
UE Sustainable and cleaner production	6	Semestre 2									
Charger le détail											
UE LCA of green technologies (including Green line project - 2nd stage)	6	Semestre 2									
Charger le détail											
UE Green chemistry metrics for feedstocks to biochemical development	6	Semestre 2									
Charger le détail											
UE Biorefinery systems: enzyme technology, chemistry processes design, kinetics	6	Semestre 2									
Charger le détail											
UE Biopolymers: basics, introduction and applications	6	Semestre 2									
Charger le détail											

Matières	ECTS	Semestre	Cours	TD	TP	Cours-TD	Cours-TP	TD-TP	A distance	Projet	Tutorat
UE Economic tools for environmental analysis	6	Semestre 2	39	9							
Charger le détail											

Matières	ECTS	Semestre	Cours	TD	TP	Cours-TD	Cours-TP	TD-TP	A distance	Projet Tutorat
UE Decision aiding, operation research and sciences for innovation	3	Semestre 2	16	8						
Charger le détail										
Biomass resources and territories	6	Semestre 2	12	12	18					
Charger le détail										
UE Green line project - 2nd stage	6	Semestre 2	9	21	60					
Charger le détail										
UE Environmental assessment for a sustainable bioeconomy	4	Semestre 2	9	3						
Charger le détail										
UE Bioenergies and lignocelluloses	2	Semestre 2	9							
Charger le détail										
Transversal and intercultural skills	3	Semestre 2								
Charger le détail										

Matières	ECTS	Semestre	Cours	TD	TP	Cours-TD	Cours-TP	TD-TP	A distance	Projet Tutorat
UE Strengthening in chemistry or in biology (according to student background) + process engineering	3	Semestre 1	25	10						
Charger le détail										
UE Molecular biology of microorganism	3	Semestre 1	10	5	10					
Charger le détail										
UE Green Line project -1st stage	3	Semestre 1	9	15						
Charger le détail										
UE Green chemistry - biosourced buildings blocks	3	Semestre 1	12	4	6					
Charger le détail										

Matières	ECTS	Semestre	Cours	TD	TP	Cours-TD	Cours-TP	TD-TP	A distance	Projet Tutorat
UE Biochemistry of plant components and biorefinery Charger le détail	6	Semestre 1	25	8	17					
UE Agricultural and viticultural soils Charger le détail	3	Semestre 1	20		5					
UE Plant-soil interactions Charger le détail	3	Semestre 1	15	4	6					
UE Physiology and genetic of plant development Charger le détail	6	Semestre 1	28	12	10					

Lieu(x) d'enseignement

REIMS
PALAISEAU

Contact(s)

- **Stephanie BAUMBERGER**
- **Sophie LANDAUD-LIAUTAUD**

http://www.universite-paris-saclay.fr/formation/master/biologie-agrosciences/m1-biomass-engineering-bioeconomy