



SCIENCE, TECHNOLOGY, HEALTH

# GREEN Graduate Program - Materials Inspired by Nature and for Energy and Sustainable Technologies (MINEST)

Master Materials Science and Engineering



ECTS  
120 credits



Duration  
2 years



Component  
Collège  
Sciences et  
Technologies  
pour l'Energie et  
l'Environnement  
(STEE)



Language(s)  
English

## Presentation

[Check our FAQ HERE](#) |

In 2022, the University of Pau and Pays de l'Adour opened a **5-year Master's degree + PhD program of excellence in a variety of disciplines linked to energy and the environment research, the GRaduate School for Energy and Environmental iNnovation (GREEN).**

**Every student, whether French or foreign, accepted into the program will be offered a €5,000 stipend per year for the first two years.**

**Apply here from October to March**

*N.B. Our Master's programs may not open if enrollment is too low.*

The **Materials Inspired by Nature and for Energy and Sustainable Technologies** graduate program (GP) aims to offer an educational background that enables a connection between the laboratory and the living world in line with the current challenge of ecological and sustainable transitions. Mimicking strategies deployed by Nature represents infinite scientific and technological challenges that will be undertaken by choosing bioinspiration and biomimeticism.

With this program, unique in France, we ask students to explore living systems to get inspiration to develop novel materials while keeping in mind ethics and consciousness of their environment.

Multi and transdisciplinary training, which is at the heart of the biomimetic approach, will enable students to adopt new ways of thinking syntheses, formulations, and processing of tomorrow's materials needed by the industrial partners to build our future society.

In both the first and the second year of the program, students will be trained to draw inspiration from nature through a biomimetic approach. This multidisciplinary



approach, which resorts to both fundamental science and materials engineering, is based on the observation and comprehension of living organisms within their ecosystems.

A strong effort of abstraction to establish biological models to be adapted to scientific concepts and technological developments will be key to the lectures.

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## Objectives

### Interdisciplinarity and research immersion in laboratories

In order to promote transversal and interdisciplinary activities, all the Graduate Programs proposed by GREEN are identically structured. In addition to the research training which represents 40% of a Master's credits, the courses offered in each program are a combination of common thematic culture courses in the field of Energy and Environment (Sustainability Science, Resilience Alliance, Ecological Economics and Political Ecology, Health & Ecotoxicology, Energy Law & Policy...) and basic soft skills completed by fundamental and specialized disciplinary courses to fit with the research or topic of interest of the students.

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## Your university

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## Additional information

- A €5,000 stipend
- Training in English
- More than one-third of credit hours acquired in research
  - Integrating research laboratories right from the 1st semester
  - Student-centered learning
  - Multidisciplinarity (Chemistry, Physics, and Biology)
  - Post-graduate studies with a PhD thesis - if the criteria of excellence are met

- Tutorship and tailor-made programs: each student will have a tutor with whom he/she will build his/her curriculum related to his aspirations and research interests. The tutor will also help the student define a series of face-to-face or e-learning courses (up to 20 or 25% for the Science graduate programs) that s/he can easily keep up with.

### Contact

The International Master Programs Admission Office

[master.programs@univ-pau.fr](mailto:master.programs@univ-pau.fr)

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## Organisation

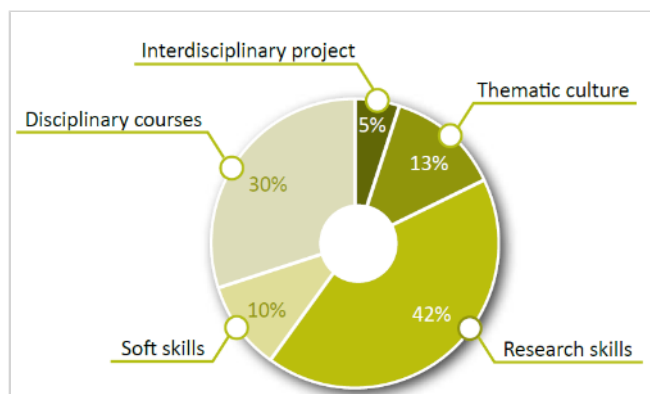
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## Organization

### Project-based learning

The research-based training program of our GREEN program follows the active pedagogy educational approach of "student-based learning." The aim is to guide our students and help them structure their research and innovation projects while giving them a great deal of autonomy.

In the second year, there is therefore a significant reduction in the number of face-to-face courses in favor of project-based learning, in order to put students in a professional situation so that they can experiment with group work and project management. This framework encourages strong interaction between students, lecturers, and researchers to ensure easier integration into the host research laboratories. The interdisciplinary project proposed in the third semester should give students from all the graduate programs an opportunity to produce joint, multidisciplinary work.



## Admission

### Admission requirements

The GREEN Graduate school is open to high-potential students from a variety of scientific backgrounds who have completed their undergraduate training with the highest honors and are highly motivated for a dedicated research-focused PhD track.

- Applicants for the 1st year of the Master's degree (M1) must hold at least a Bachelor's degree in Chemistry, Biology, or Physics.
- Applicants for the 2nd year of the Master's degree (M2) must hold at least a 4-year university degree in Chemistry, Biology, or Physics.

#### English Language Requirements

- Applicants must be fluent in English, both in writing and speaking.
- A non-native English candidate must pass an internationally recognised English test or an English interview with our lecturers.
- Minimum required score CECRL **B2** level in English (Advanced English).

### How to apply

Apply here from October to March

## Tuition Fees and partial exemptions

Go to the [Tuition fee page](#) | 📄

*The school partially exempts non-EU students from the differentiated fees for initial training enrolling in the Master's program.*

## And after

### Professional insertion

#### Sectors

- Chemistry: bio-surfactants, biopolymers, bio-sourced materials...
- Energy : photovoltaic, batteries, fuel cells, artificial photosynthesis...
- Environment : non-polluting materials, pollution control materials and storage, crop protection, agriculture...
- Aeronautics : composite materials, surface treatments...
- Building : thermal and sound insulating coatings/ materials...
- Cosmetics, healthcare & life science

#### Fields

- Research and Development

#### Positions

- Project manager



- Senior manager in design and development
- Senior manager in production
- Senior manager responsible for quality operations or even production management
- Technical director (R&D)
- Teacher-researcher

## Useful info

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### Contacts

#### Administration contact

Secrétariat physique

✉ [secretariat-physique@univ-pau.fr](mailto:secretariat-physique@univ-pau.fr)

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### Campus

 Pau

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### Know more

#### International Master Programs

 <https://ri.univ-pau.fr/en/studying-at-the-uppa/international-master-programs.html>