



# MASTER'S DEGREE IN EARTH AND PLANETARY SCIENCE, ENVIRONMENT

U N I V E R S I T É P S L

Made possible by a collaboration between the Ecole normale supérieure – PSL, the Ecole nationale supérieure des Mines de Paris – PSL, the Observatoire de Paris – PSL and the Ecole Pratique des Hautes Etudes – PSL, the Master's degree in Planetary Science from Université PSL offers state-of-the-art training in the fields of earth science, meteorology, oceanography, climate science and biogeoscience, as well as their applications for environmental science both on Earth and in space. This Master's degree program is designed to address the need to train a new generation of geoscientists who can quantitatively evaluate the operations and development of System Earth, a complex system of solid and fluid containers that interact across a range of temporal and spatial scales. This master's degree is part of PSL Graduate Program in Earth Science and Biodiversity.

## MAIN ASSETS

- **An innovative approach** built around a comprehensive perspective on "Planet Earth" (solid earth, ocean/atmosphere, space environment, interfaces).
- **A "learn by doing" approach to research**, with two lengthy laboratory internships, one in each year of the program, in France and abroad.
- **Unprecedented collaboration between some of the most prestigious academic institutions in France** in the area of planetary science.
- **Immersion in an advanced international research ecosystem**, working closely with major laboratories and scientific innovation, notably through the program's **affiliation with PSL's graduate program in Earth Science and Biodiversity**.
- **Individualized training** that draws on a wide range of optional courses, allowing students to define their own disciplinary focus in conjunction with their mentor.
- **A flexible format** in which courses can be staggered over the entire two-year period, as at most of the world's top-tier universities.

English track

- **A curriculum that includes both a scientific and social component attentive** to weighty topics such as climate change, mitigation of natural risks, sustainable natural resources and the energy transition.
- **Proven career opportunities in both the business world and the public sector** in addition to research and higher education.
- **An international study environment**, in which some courses may be given in English.
- **An unequaled campus life in the very heart of Paris**, benefiting from the opportunities available at Université PSL to meet students from several institutions and move among a variety of campuses.

## CAREER OPPORTUNITIES

- Doctoral dissertation leading to a career in research and higher education.
- A career with large companies or major government institutions.

## CURRICULUM

### Master's Year 1 (M1) : 60 ECTS

[One academic track is available: Planetary Science](#)

#### Required core curriculum modules

- Radiation and Remote Sensing
- Inverse Methods
- Digital Methods
- Geostatistics

#### Optional courses

Students choose 5 to 7 modules, including at least one per discipline:

- Ocean and Atmospheric Science (8 modules)
- Interfaces (4 modules)
- Solid-Earth Science (10 modules)
- Society (4 modules)

#### Two research internships

- Fall internship
- Research internship outside France (5 months)

### Master's Year 2 (M2) : 60 ECTS

[One academic track is available: Planetary Science](#)

#### Required core curriculum modules

- Statistical Methodology for Large Datasets
- Practicum in Geophysical Modeling
- Nonlinear Dynamic Systems
- Digital Geosciences Project

#### Optional courses

Students choose 5 to 7 modules, including at least one per discipline:

- Ocean and Atmospheric Science (8 modules)
- Interfaces (4 modules)
- Solid-Earth Science (10 modules)
- Society (4 modules)

#### Two research internships

- Fall field internship in France
- Laboratory research internship (5 months in France or abroad)

## LEARNING OUTCOMES

The Master's program offers comprehensive training in the earth sciences, atmospheric and climate science, oceanography and biogeoscience. It provides students with the quantitative and disciplinary foundation they need in order to play an active role in future geoscientific research and contribute to industrial innovation and R&D. It is designed to promote open-minded intellectual development and an interdisciplinary approach, and includes numerous activities in the field as well as multiple research internships. The training offers the necessary grounding in the earth sciences and provides participants with the disciplinary knowledge to pursue very high-level research in their chosen specialization or investigate the fields of the future in industry. It produces students with the ability to tackle weighty topics in all their complexity, including climate change, mitigation of natural risks, sustainable natural resources and the energy transition.

## SUPERVISION

Throughout their course of study, students will be individually tutored by a researcher from one of our partner institutions, who will help them design their own learning path. Classes are taught in person, with a major research component. The course offerings include a wide range of optional courses outside the core curriculum; as a result,

students can design their own thematic or disciplinary focus by choosing electives after discussion with, and with the approval of, their mentor.

## ADMISSION

### Prerequisites

**Master's Year 1:** A Bachelor's degree in earth science, physics or chemistry or 180 ECTS credits from a scientific curriculum of Bachelor's degree or equivalent level, including students from engineering schools.

**Master's Year 2:** Master's Year 1 or the equivalent in the disciplines cited above.

### Selection process

Based on an application and interview.

## DIPLOMA DELIVERED

National Master's degree conferred by Université PSL and prepared at ENS-PSL.

## TEACHING LOCATIONS

Classes are held in the heart of Paris on the campuses of École Normale Supérieure-PSL and the PSL schools involved in the Master's program.

### More information

[psl.eu/en/education/masters-degree-planetary-science](https://psl.eu/en/education/masters-degree-planetary-science)

### Contact

Head of the master's program : Romain JOLIVET  
[edu@geosciences.ens.psl.eu](mailto:edu@geosciences.ens.psl.eu)



Université PSL  
[psl.eu](https://psl.eu)

f @PSLuniv

📷 @psl\_univ