Université Paris Cité

Earth Data Science

Niveau d'étude
Master 2

ECTS
3 crédits

Volume horaire
24h

Période de l'année
Semestre 3

Présentation

DESCRIPTION

This module is designed for students interested in learning the fundamentals of data science, including artificial intellingence and machine learning, through practical applications in Earth sciences.

Lectures introduce key concepts in statistics and machine learning for data analysis, covering regression, classification, clustering, and dimensionality reduction. The course concludes with an introduction to neural networks and their underlying mechanisms for automating time series and image analysis.

A second part consists of hands-on sessions, where students apply a selected set of the learned tools to revisit published results. This practical approach ensures that students not only understand the theory but also gain experience working on real geoscientific problems. We will explore a variety of case studies, including earthquake detection, LiDAR data classification, sensor calibration, time series prediction, and more.

OBJECTIFS

This course provides students with a foundation in statistical learning and deep learning. By successfully completing the module, students will be able to read, understand, and critically assess scientific publications that rely on these methods. They will also be equipped to implement appropriate data-driven solutions when relevant, and to identify suitable model architectures for their specific needs, potentially even developing their own tools when necessary.

HEURES D'ENSEIGNEMENT

Earth Data Science	Cours Magistral	8h
Earth Data Science	Travaux Dirigés	16h

PRÉ–REQUIS NÉCESSAIRES

A working knowledge of Python, basic statistics, and geosciences is expected. Since the hands-on sessions rely heavily on Python, a short self-assessment test will be made available before the course begins to help students evaluate their technical readiness.

Pour en savoir plus, rendez-vous sur > u-paris.fr/choisir-sa-formation