RÉPUBLIQUE FRANÇAISE
Liberté Égalité Fraternité

BORDEAUX INP Ensegid

DATA SCIENCE & IA IN GEOSCIENCES AND ENVIRONMENTAL SCIENCES · JANUARY 2027

Data Science & AI in Geosciences and Environmental Sciences

A one-week intensive course for doctoral researchers, graduate students, and professionals who want to become effective and critical interlocutors in data-driven workflows.

Dates	4 - 8 January 2027
Location	ENSEGID - Bordeaux INP, Pessac (France)
Format	In person · 27h of teaching
Language	English - materials in English
Capacity	15 - 20 participants
Recommended skills	Basic Python & statistics - no ML experience required
Contact	aargentin@bordeaux-inp.fr

ABOUT THE COURSE

This course is designed to give doctoral researchers and professionals a solid first foundation in data science and AI methods applied to geosciences and environmental sciences — one they can build on independently afterwards. For doctoral students in particular, who often work without dedicated data support, this week is conceived as a starting point for a longer self-driven journey.

For all participants, the goal is to become an effective and critical interlocutor in data-driven workflows: able to navigate real pipelines, challenge model outputs, and ask the right questions.

WHAT YOU WILL LEARN

- Navigate the full data pipeline, from raw field data to model output
- Identify the appropriate method or tool for a given geoscience or environmental science problem
- Assess the quality and limitations of a machine learning model
- Interpret and challenge results produced by AI-based workflows
- Communicate clearly with data engineers, modellers, and analysts

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Programme

27 hours of teaching over five days, combining lectures, applicative exercises and practitioner talks.

	Monday	Tuesday	Wednesday	Thursday	Friday
8h30–10h30		Industry hydrologist — Extract, Transform, Load; Temporal dataset treatment	Data Scientist, water industry - Resources prediction; Hybridation; Random Forest	Digital twins	Incorporating physics into AI models
10h30–11h30		Exploratory Data Analysis — Descriptive Statistics, Anomalies, Interpretation, Temporal & Spatial Characteristics, Data Reduction	Database Fundamentals — Basic Queries, How to Design a Scalable Database?	Data visualization	
Lunch					
13h–15h	Intro to the data world	Data cleaning & preparation — data quality, GIGO, concrete examples in geosciences and environmental sciences (drilling, GIS, time series)	Machine Learning basics	Model Evaluation — Overfitting, Metrics, and Critical Thinking About AI	
15h–17h	A. Pryet — Transfer functions applied to hydrogeological modeling	Presentation of student goals	Deep Learning basics	Geoscientist, oil & gas industry — Data augmentation; Automatic recognition of patterns	

Practitioner talks are highlighted in red.

REGISTRATION FEES

Participant category	Fee
Doctoral students (all institutions) & unfunded participants	**€450**
Employed professionals (funded participants)	**€700**

The fee includes teaching materials, access to course datasets, and a certificate of participation.

INSTRUCTORS

The course is taught by faculty and researchers at ENSEGID - Bordeaux INP, with contributions from invited practitioners working in data-intensive geoscience and environmental science fields.

- Anne-Laure Argentin - course coordinator, AI, modelling & data science, ENSEGID - Bordeaux INP
- Alexandre Pryet - guest lecturer, hydrogeology & data science, ENSEGID - Bordeaux INP

REGISTRATION & CONTACT

For registration and any enquiries, please contact: aargentin@bordeaux-inp.fr

HOW TO APPLY

Places are limited to a maximum of 20 participants.

To apply, please upload the following documents:

- Full name and affiliation
- Status: doctoral student / professional / other
- Research theme or professional domain
- Python level: beginner / intermediate / advanced
- Curriculum vitae (CV)
- Cover letter - please describe your current research or professional context, your motivations for attending, and what you hope to take away from the course

Application deadline: 30 October 2026. Applications will be reviewed on a rolling basis — early submission is encouraged, particularly for participants travelling from abroad.

Successful applicants will receive a confirmation email with practical information and payment instructions.