

# Data analysis



## Component

École Nationale  
Supérieure  
d'Électrotechnique  
d'Électronique  
d'Informatique  
d'Hydraulique  
et des  
Télécommunications

## In brief

- **Ametys Code:** M34HOB0L
- **Open to exchange students:** Yes

## Presentation

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### Objectives

This course provides an introduction to two distinct data analysis tools: Gaussian processes and optimal transport. First, we will study Gaussian processes, which are used to model and predict functions from data. Next, we will look at optimal transport, which allows us to define distances between probability distributions. This mathematical tool provides a natural framework for taking into account the underlying geometry of data that can be represented as probability distributions (discrete and continuous).

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### Description

This course is divided into two independent parts: Gaussian processes and optimal transport. For each of these parts, two lectures followed by a tutorial will introduce the tools and teach how to use them, then two practical sessions will allow students to put the tools proposed for data analysis into practice. Assessment for this subject will be based on a final graded practical session and an examination.

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### Pre-requisites

Have taken courses in probability and have some knowledge of image processing.