

# UE Statistical learning: from parametric to nonparametric models



Level  
Baccalaureate  
+5



ECTS  
6 credits



Component  
UFR IM2AG  
(informatique,  
mathématiques  
et  
mathématiques  
appliquées)



Semester  
Automne

- > **Teaching language(s):** English
- > **Open to exchange students:** Yes
- > **Code d'export Apogée:** GBX9AM78

## Presentation

### Description

This course is related to mathematical and statistical methods which are very used in supervised learning.

It contains two parts.

In the first part, we will focus on parametric modeling. Starting with the classical linear regression, we will describe several families of estimators that work when considering high-dimensional data, where the classical least square estimator does not work. Model selection and model assessment will particularly be described.

In the second part, we shall focus on nonparametric methods. We will present several tools and ingredients to predict the future value of a variable. We shall focus on methods for non parametric regression from independent to correlated training dataset. We shall also study some methods to avoid the overfitting in supervised learning.

This course will be followed by practical sessions with the R software.

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## Course parts

CM	Lectures (CM)	36h
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## Recommended prerequisites

basic probability statistical inference, linear model.

## Useful info

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### Contacts

Program director

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### Campus

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