


# UE Introduction to Machine Learning and Deep Learning

 ECTS  
3 credits

 Component  
UFR PhITEM  
(physique,  
ingénierie, terre,  
environnement,  
mécanique)

 Semester  
Automne

- > **Teaching language(s):** English
- > **Open to exchange students:** Yes
- > **Code d'export Apogée:** PAX9GIAY

## Presentation

### Description

Introduction to the statistical learning theory and prediction (regression/classification)

- Review of Models/Algorithms for supervised/unsupervised learning
- Illustration de ces algorithmes sur différents jeux de données on different dataset (intelligence artificielle, Bioinformatics, vision, etc ...)

Content:

- General introduction to the statistical learning theory and prediction (regression/classification)
- Generative approaches: Gaussian discriminant analysis, naïve Bayes hypothesis
- Discriminative approaches: logistic regression
- Prototype approaches: support vector machines (SVM)
- Unsupervised classification (kmeans and mixture model)
- Dictionary learning / Sparse reconstruction
- Source separation

This course is given at Phelma-INP.

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## Course parts

UE Introduction to Machine Learning and Deep Learning - CMTD	Lectures (CM) & Teaching Unit (UE)	12h
UE Introduction to Machine Learning and Deep Learning - TP	Practical work (TP)	8h

**Period** : Semester 9

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## Bibliography

- Trevor Hastie, Robert Tibshirani et Jerome Friedman (2009), "The Elements of Statistical Learning," (2nd Edition) Springer Series in Statistics
- Christopher M. Bishop (2006), "Pattern Recognition and Machine Learning," Springer
- Richard O. Duda, Peter E. Hart et David G. Stork (2001), "Pattern classification," (2nd edition) Wiley

## Useful info

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### Campus

› [Grenoble - University campus](#)