Universidad de Navarra

Machine learning for Asset Valuation

Guía docente 2026-27

PRESENTACIÓN

Breve descripción:

The objective is to teach students the main Machine Learning Techniques. The focus of the course is on practicalities of Machine Learning in Finance. After completion of the course the students will know the main models and algorithms from such areas of Machine Learning as Supervised/Unsupervised Learning. The examples are provided in Python code using Jupyter Notebooks. Basic level of programming in Python is required as well as basic level math in such areas as Linear Algebra, Statistics, Theory of Probabilities and Optimization.

- **Titulación**: Degree in Management with Specialization in Finance and Accounting
- **Módulo/Materia**: Optativas, Optativas específicas del perfil Finance and Accounting
- **ECTS**: 6
- **Curso, semestre**: Third year, First semester
- **Carácter**: Mandatory for Finance and Accounting students
- **Profesorado**:
  - José Azar (jazar@unav.es)
  - Javier Sanz-Espín (jsanzespin@unav.es)
- **Idioma**: English
- **Aula, Horario**:
  - Tuesdays 10am-12pm AMI-P0-Sem.15
  - Wednesdays 10am-12pm AMI-P1-AulaM5

RESULTADOS DE APRENDIZAJE (Competencias)

SSOP22: Know about and manage advanced tools and techniques to value financial assets

SSOP23: Gain an in-depth knowledge of the workings of financial markets

PROGRAMA

1. Introduction to Statistical Learning
2. Regression and Classification
3. Resampling Methods
4. Linear Model Selection and Regularization
5. Nonlinear Models
6. Tree-Based Methods
7. Support Vector Machines
8. Deep Learning
9. Unsupervised Learning
10. Natural Language Processing

ACTIVIDADES FORMATIVAS

- Lectures on Machine Learning and financial applications
- Machine learning with python lab sessions
- Machine Learning final project (oral presentations and written document)

EVALUACIÓN

Universidad de Navarra

CONVOCATORIA ORDINARIA

- In-class problem sets 40%
- Final exam 40%
- Final project 20%

CONVOCATORIA EXTRAORDINARIA

- Final exam 100%

HORARIOS DE ATENCIÓN

José Azar **(jazar@unav.es)**

- Despacho 2210. Edificio Amigos. Planta 2 (Hilera)
- Horario de tutoria: Miércoles 14:30 a 16:30 por Google Calendar

Javier Sanz-Espín **(jsanzespin@unav.es)**

- Despacho: TBD
- Horario de tutoria: By appointment

BIBLIOGRAFÍA Y RECURSOS

Main textbook: James, G., Witten, D., Hastie, T., Tibshirani, R. and Taylor, J., 2023. An Introduction to Statistical Learning with Applications in Python. Find it in the library.

Supplementary reading:

1. Burkov, A., 2019. *The hundred-page machine learning book* (Vol. 1, p. 32). Quebec City, QC, Canada: Andriy Burkov.
2. De Prado, M.M.L., 2020. *Machine learning for asset managers*. Cambridge University Press.
3. Udayan, D., Aubrey, L., Chris, M. and Narges, N., 2024. Introduction to Python Programming.