STUDY ABROAD

ITBA Escuela de INNOVACIÓN
EVOLUCIÓN CONTINUA

Artificial Intelligence

LANGUAGE OF INSTRUCTION:

English

TERMS OFFERED:

Summer & Winter terms

PROGRAM OVERVIEW:

Artificial intelligence and Robotics are growing areas that are being applied in projects from different industries, in areas such as Finance, Medicine, Art and more. This course will provide knowledge from the field of Artificial Intelligence to create tools that facilitate decision making.

LEARNING OUTCOMES:

Participants can acquire knowledge about:

- Artificial Intelligence and possible applications
- Machine Learning and Neural Networks
- Image Processing and Natural Language Processing

TEACHING METHODOLOGY:

The modality of the program is in a workshop format with theoretical and practical classes with exercises in R Language.

ASSESSMENT METHODOLOGY:

It consists of practice exercises during the course and an exam at the end of the course.

CONTENT BY UNITS:

Module 1. **Machine Learning**

Introduction to AI. Modeling principles and good practices. Regression vs Classification. Performance measures of a model.

Introduction to Neural Networks. Neural Network Architecture. Training a Neural Network.

Architecture and creation of Decision Trees. Introduction to SVM. Selection of kernels and associated parameters.

Clustering with k-means method.

Module 2. **Image Processing**

Introduction to image processing. Image segmentation with k-means. Grouping and classification of images.

Module 3. NLP

Introduction to Natural Language Processing. Preprocessing of the text to be analyzed. Applications with Machine Learning.

LEARNING REQUIREMENTS:

No previous knowledge required.

PROGRAM OUTLINE:

- Modality: In-person
- Duration of classes: 3 hours
- Teaching: Monday to Thursday, 2:00 p.m. – 5:00 p.m.
- Duration: 48 hours spread over 4 weeks
- Total amount of hours: 48

Course Schedule:

- **Winter 2026:** January 5 – January 29, 2026

  (Program start: December 2025 with welcome email).

- **Summer 2026:** July 2026 (exact dates to be confirmed).

  (Program start: Mid-June 2026 with welcome email).

BIBLIOGRAPHY:

- An Introduction to Statistical Learning with Applications in R - Gareth James, Daniela Witten, Trevor Hastie, Robert Tibshirani – Springer, 2nd edition 2021 (Corrected June 2023).
- The Elements of Statistical Learning – Data Mining, Inference and Prediction - Trevor Hastie, Robert Tibshirani, Jerome Friedman – Springer, 2nd edition 2009 (Corrected January 2017)..

COURSE GRADING:

The final grade of the course will be based on the approval of the exercises and the final exam.