



C O U R S E S



# Deusto Summer School 2022

Keep on learning to be part of the change



The world and society experience a process of constant change. The Deusto Summer School 2022 programme has the aim of bringing the current realities closer and providing the tools to face these new challenges of the society in different fields.



## What makes the Deusto Summer School different?

- 100% online learning
- English and Spanish teaching
- Multidisciplinarity
- Certificate of participation
- Expert lecturers
- Deusto learning methodology applied to online learning
- International participants
- Special discounts



## Deusto Summer School and Sustainable Development Goals

The Deusto Summer School is closely linked to the Sustainable Development Goals promoted by the United Nations' Agenda 2030. Thus, each course is aligned to one of the SDGs, showing the commitment of the University towards social transformation.



## Reasons to enroll in the Deusto Summer School courses

- To develop new skills
- To improve your professional career
- To get into the very latest matters
- To enjoy by further learning about your favourite topics



## How will you learn?

The methodology of the Deusto Summer School courses is based on **University of Deusto Learning Model (MAUD)**, adapted to distance learning. This model integrates the stages of contextualization, reflective observation, conceptualization, active experimentation and assessment. A methodology that enables **autonomous learning** and encourages the **development of knowledge, skills, attitudes, capacities and values**. This methodology guarantees a complete learning experience, so that every student can apply the acquired knowledge in the future.

To implement this methodology the following teaching resources are used:

- ◉ Combination of live video conference classes with online learning, through resources and activities on the university's learning platform.
- ◉ Use of learning resources in different formats for the presentation of theoretical content.
- ◉ Different learning activities to verify the acquisition of both theoretical and practical knowledge and the acquisition of skills.
- ◉ Follow up and assessment.

## Course planning

Deusto Summer School courses are organized as follows:

### Introduction

Participants personal work. Different activities in order to get initiated into the topic of the course.

### Course modules

3 live sessions of 1h30' combined with online resources and activities before and/or after the video conferences.

### Closing session

Video conference session to sum up the program, to solve questions that arose during the course and to provide general feedback.





# HOW TO MODEL HUMAN BEHAVIOUR USING ARTIFICIAL INTELLIGENCE?

The challenges associated with the twin digital and green transition require not only technological development but also social development. Up to now, in many sectors, this social development has not received enough attention, with the result that some products or policies have failed. One way to tackle this issue is by developing behavior models to study the social development.

This course is aligned with the 9th Sustainable Development Goal "Build resilient infrastructure, promote sustainable industrialization and foster innovation". The course allows students to get to know the key points that explain behavior and decision-making and include them in mathematical models.



## Aims of the course

This course has the following objectives:

- The objective of this course is to train students in different behavior modeling methodologies so that they can autonomously develop such models.
- In addition, the course aims to develop generic and specific competences:
  - Generic:
    - Participation in multidisciplinary activities
    - Development of group activities in general and especially in online group activities
    - Oral and written communication of scientific results
  - Specific
    - Using quantitative modeling techniques to segment behaviors
    - Use of qualitative modeling techniques to explain behaviors
    - Development of analysis skills that allow evidence-based decision making



This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 891943.

## KEY INFORMATION

Calendar	>	Starting date: 20/06/2022 Ending date: 24/06/2022
Duration	>	8 hours
Language	>	English
SDG	>	9. Industry, Innovation and Infrastructure
Teaching Method	>	Online
Maximum Number of Participants	>	30
Application Deadline	>	06/06/2022
Price	>	75€ This course is part of and fully funded by the WHY Project, which has received funding from the European Union's Horizon 2020 programme



## Participant profile

- This course is mainly addressed to master or PhD students that are interested in learning different ways of modeling human behaviour.
- Other potential interested participants are junior modellers interested in learning how to process high frequency time series or causal models in order to improve their modeling toolboxes.
- Finally, technical staff from different public authorities or utilities could also be interested in learning these techniques.
- Requirements: Previous knowledge of programming language.
- B2 level of English is recommended.



# Program

## Methods to extract behaviour patents from high frequency time series

- Introduction to machine learning
- Data visualization: get familiar with the information contained in the datasets
- Data cleaning: imputation, extension, outlier removal
- Feature extraction: one set fits for all vs tailored features
- Data segmentation: clusterization following different algorithms
- Quantitative assessment (validation) of the model
- Qualitative results assessment: taxonomy creation
- Knowledge extraction: household personae

## Causal models for behaviour modelling

- Introduction to Causal Models
- Writing a causal diagram
- Adjusting a model using Do-Why (selecting a potential outcome)
- Measuring the causal effect
- Refuting an estimand

## Qualitative methods

- How to set up the intrinsic and extrinsic variables in your model?
- How to build from scratch a causal diagram?



# Calendar of the course

	MONDAY 20/06	TUESDAY 21/06	WEDNESDAY 22/06	THURSDAY 23/06	FRIDAY 24/06
Introduction - Personal work	1h	–	–	–	–
Life video conference 11.00h - 12.30h CEST	–	1h30'	1h30'	1h30'	–
Personal work prior to and/or after video conference	–	30'	30'	30'	–
Closing video conference 11.00h - 12.00h CEST	–	–	–	–	1h



# Lecturers

- Armando Aguayo Mendoza.** Researcher at DeustoTech at the University of Deusto and research professor of TESCo. [Profile](#)
- Cruz Enrique Borges Hernández.** Coordinator of the course, researcher at DeustoTech, at the University of Deusto. [Profile](#)
- Diego Casado Mansilla.** Researcher at MOREllab and DeustoTech and professor at the University of Deusto. [Profile](#)
- Carlos Quesada Granja.** Researcher at DeustoTech at University of Deusto. [Profile](#)



## BESIDES...

The faculties of the Universidad de Deusto offer the following courses:



### Fashion Law and Management

Organized by the Faculty of Law in collaboration with the London College of Fashion (University of the Arts London).

- ◉ Date: 27/06/2022 - 01/07/2022
- ◉ Language: English
- ◉ Teaching method: Bilbao campus at the University of Deusto

More information available at <http://www.deusto.es/summerschool>

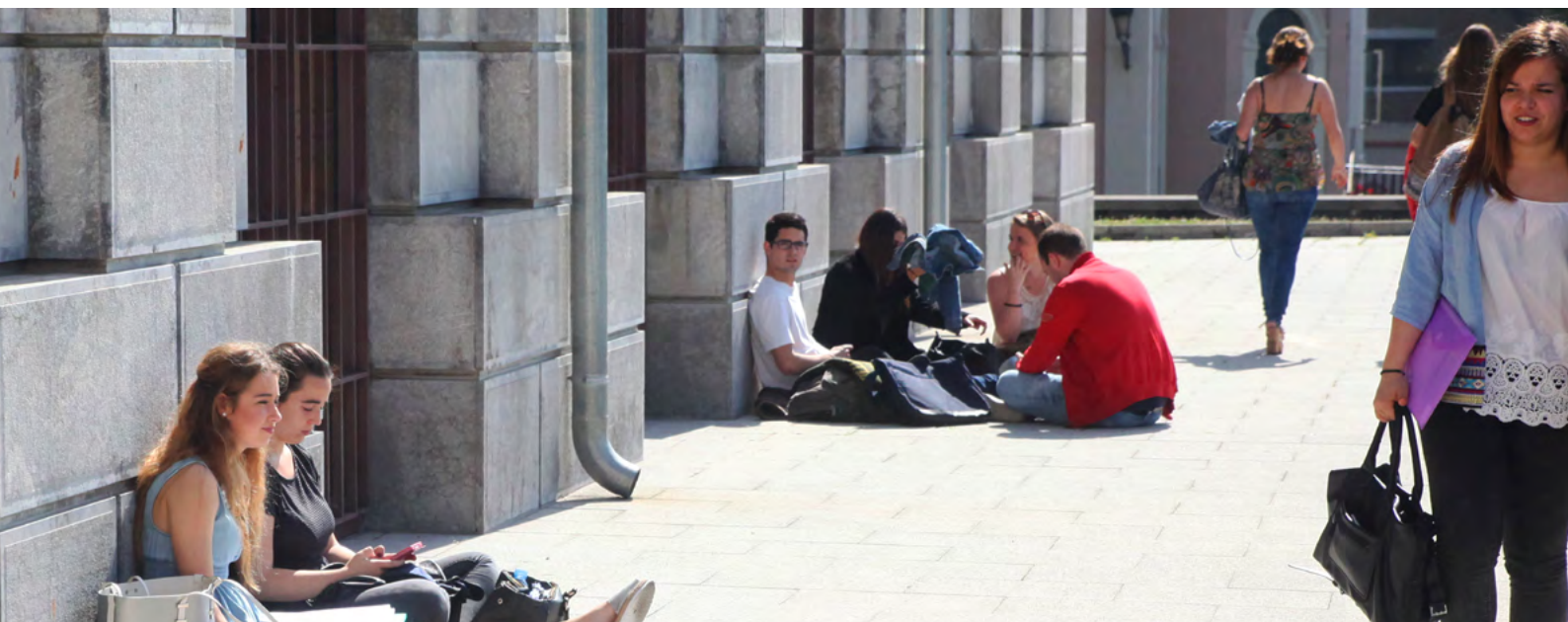


### Summer Programme ESG Investment & Finances

Organized by Deusto Business School in collaboration with the Provincial Council of Bizkaia and FINECO.

- ◉ Date: 20/06/2022 - 24/06/2022 (to be confirmed)
- ◉ Language: English
- ◉ Teaching method: On campus

More information <https://www.deusto.es/en/home/study/courses/summer-school/esg-investment-finance>

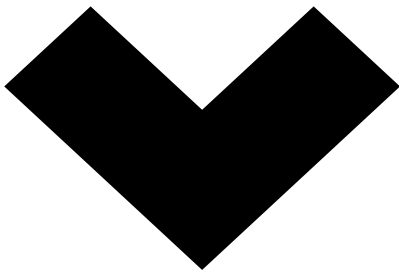
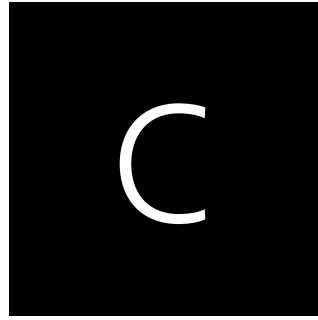




The leaflet is merely informative and can be subject to subsequent modifications.  
Closing edition: March, 2022.



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## **Deusto Summer School 2022**

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