**Course offered for the PhD program
in Civil, Chemical and Environmental Engineering
Curriculum in Chemical, Material and Process Engineering –
a.a. 2022/2023 (cycles XXXVIII, XXXVII and XXXVI)**

(possibility of participation for students in other PhD cycles or other PhD courses)

1. Title
Data Science for Chemical and Environmental Engineering

2. Course Description
The course aims to provide the student with basic notions about Data Science, particularly the KDD (Knowledge Discovery in Database) process and Machine Learning, with an emphasis on its application to Chemical and Environmental Engineering, including:
- Basic notions about the use of Python and the Pandas library (including differences to MATLAB)
- Data extraction and preparation process
- Statistical analysis of data
- Regression of data using Machine Learning techniques.

The Python language (Google Colab) will be used, which is a widely-used tool in the world of Data Science and Machine Learning.

3. Course Organization
The course, organized in a single module, will consist of practical computer laboratory lessons.

4. Teacher
The course teacher will be Dr. Manuel Campoy

5. Duration and credits
The course (10 hours) will consist of 3 lessons, 3.3 hours each, for a total of 2 credits.

6. Activation mode and teaching period
The course will be held (to be confirmed) from June 27th to 29th, 2023.

7. Deadline for registration
Registration for the course must be completed by June 15th, 2023. Students are asked to inform the teachers via email (mcampoy@us.es; Cristina.Moliner@unige.it) about their registration, including their proficiency in using Python and/or MATLAB (with the aim of adapting the course content to the participants' level).

8. Final exam
The final exam will consist of a small Data Science project to be developed during the last session and, if students need it, a few additional days. The project will be sent to the teacher by email once finished to be reviewed.