The course is annual and is divided into two parts. **Part I** is held in the first semester by prof. G.Giunta, **Part II** is held in the second semester by Prof. M. Rizzardi.

The final exam is unique. Attending students are allowed to take the exam as two exams (exam-Part I and exam-Part II). The calendar of the exam-Part I appears below (and does NOT appear in the ESSE3 portal). The calendar of the exam-Part II coincides with that of the complete exam and appears on the ESSE3 portal. Only for the exam-Part II it is necessary to book in ESSE3.

Scientific Computing - Part I
Data Science and Simulations - 6 cfu (prof. Giulio Giunta)

Lessons are held face to face.
All the lessons of the past academic year 2021/22 have been recorded and can be seen via Microsoft TEAMS - **Teams code of the lessons of prof. Giunta: 5612r12**

Prof. G. Giunta, room 420, email: giulio.giunta@uniparthenope.it, phone: 0815476546. Office hours: Friday 11:30 - 12:30. Please send an email for fixing an online meeting. Microsoft TEAMS code: **69vk37a**

Teaching Assistant P. De Luca, room 435, email: pasquale.deluca@collaboratore.uniparthenope.it ; deluca@ieee.org; pasquale.deluca@uniparthenope.it

To book the exam-Part I, send an email to prof. Giunta.

Next exams-Part I (prof. G. Giunta, room 420): Sept. 27 at 12:00, Oct 18 at 12:00, Nov 22 at 12:00, December 20 at 12:00; January 23 at 10:00; February 27 at 10:00; March 13 at 10:00. The reservation must be made four days in advance, exclusively via email to the teacher (the exam-Part I cannot be booked on ESSE3). The order of arrival of the email will be the order of the exam calendar. Each booked student will receive an email with the day and time of their exam. The exam-Part I will be held in person **(**the online mode is reserved for students with frailty. The online exam takes place via Microsoft TEAMS. The Teams code for the exam-Part I is **ged324m)**.

The teaching material consists of video-lessons recorded in real time (via Teams, all lessons, AA 2021/2022), slides of the lessons (all lessons), On-Line Tutorials (Matlab Live Editor files) which make up the laboratory part of the course, Matlab files of the programs developed in the course.
The teaching material is also availabl on the Team (teams code **5612r12)** of the Course (File - Course material - Matlab files).
A recommended in-depth text is "Linear Algebra and Learning from Data", by G. Strang, Wellesley-Cambridge Press 2019.

More information on the exam Part 1:
The exam is only oral and it typically consists in answering three questions: one question on Linear Algebra (such as "properties of QR /SVD factorization", " properties of orthogonal matrices and orthogonal

projections", " Principal Components Analysis and SVD",…); one question on Minimization (such as "Properies of the gradient and Gradient Descent Methods", "Stochastic Gradient Descent", "Non Linear Least Squares",…); one miscellaneous question (such as Page Rank algorithm, "Markov Chains", "Automatic Differentiation",…).