

**April 7, 2025 – 10:00am-1:00pm**

**April 8, 2025 – 3:00pm-6:00pm**

**April 9, 2025 – 10:00am-1:00pm, 3:00pm-6:00pm**

**April 10, 2025 – 3:00pm-6:00pm**

## **Prof. Daniela Boldini**

*Associate Professor, Department of Chemical Engineering  
Materials Environment, Sapienza University of Rome*

## **Dr. Edoardo Lusini**

*Research Fellow, Department of Chemical Engineering  
Materials Environment, Sapienza University*

# **Numerical Modelling in Geomechanics**

This 15-hour course is designed to provide a comprehensive understanding, at the post-graduate level, of the key aspects of saturated soil modelling using the Finite Element method. It begins by introducing the field equations that govern the interaction between soil skeleton and pore fluid under static conditions, followed by their finite element discretization and solution. The course also delves into the implementation of soil constitutive laws at the level of Gauss integration points, encompassing both common explicit and implicit numerical algorithms. The scope of the governing equations is then expanded to cover dynamic conditions, offering insights into addressing earthquake geomechanical problems. In the final session, the course explores relevant challenges in practical applications, including considerations such as 2D versus 3D schematization, initial and boundary conditions, staged construction, and soil-structure problems, illustrated with practical examples.

Program:

[https://phd.uniroma1.it/web/course---numerical-modelling-in-geomechanics\\_ns22126EN\\_EN.aspx](https://phd.uniroma1.it/web/course---numerical-modelling-in-geomechanics_ns22126EN_EN.aspx)

Registration form:

<https://forms.gle/5Kai22QJgEudqNMt9>