

PHD PROGRAMME IN PHYSICS, ASTROPHYSICS, AND APPLIED PHYSICS
UNIVERSITÀ DEGLI STUDI DI MILANO
PhD Cicle 41 (2025-2026)

All lectures will be given in English.

Course title	Instruments and methods for a cultural understanding of physics
Teacher in charge of the course	Giliberti Marco
List of the teachers of the course	Giliberti Marco; University of Milan; marco.giliberti@unimi.it Bonizzoni Letizia; University of Milan; letizia.bonizzoni@unimi.it Luisa Lovisetti; University of Milan; luisa.lovisetti@unimi.it
Training objectives	Providing a multidisciplinary vision, which simultaneously serves to frame physics in a cultural context that is important for today's man and, at the same time, elucidate some useful tools for the disciplinary appropriation of its contents. Some examples of tutoring will also be examined, with particular focus on their objectives, aims, and concrete methodologies.
Prerequisites	No particular prerequisites are needed. The course is also suitable for non-physicist graduates, and its contents will be adapted according to the needs and knowledge of the students.
Detailed course program	In the first module, as monographic examples, the huge cultural impact generated by the gradual and tormented birth of the three principles of dynamics, and the genesis of quantum mechanics starting from the so-called old quantum physics will be discussed. In the second module we will change the point of view of the course; we will explore the applications of physics to different cultural contexts and its role in multidisciplinary research related to the cultural heritage. We will discuss case studies to explain how physics can support the knowledge and understanding of cultural heritage. Ample space will be given to discussion and group work on the issues addressed. Examples of educational activities carried out in a tutoring role: the pendulum, and universal gravitation.
Examination modalities	Oral discussion on a theme chosen by the student
Preliminary schedule	December 2025-January 2026 Course enrolment deadline: November 27, 2025.