



UNIVERSITÀ  
DEGLI STUDI DI MILANO-BICOCCA

## COURSE SYLLABUS

### Medical Physics - 5

2526-1-I0102D004-I0102D013M-T5

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#### Aims

Provide students with the knowledge of general physics and medical physics necessary to carry out the profession.

#### Contents

The course will provide basic notions of physics, including: classical mechanics, fluid dynamics, thermodynamics, electrostatics. Emphasis will be given to physics that is most relevant to the profession (levers, echography, electrostatics, gas physics, osmosis).

#### Detailed program

Mechanics: scalars and vectors, kinematics, forces and Newton's laws, inclined plane, work and energy, levers

Physics of waves: sound waves, Doppler effect, principles of echography

Electromagnetism: Coulomb forces, electric field and potential, kinematics of charges, capacitor, current and Ohm's law.

Fluid dynamics: mechanics and statics of fluids, Bernoulli theorem, viscosity, surface tension

Thermodynamics: heat, ideal and real gases, work and transformations, principles of thermodynamics, heat transfer, diffusion and osmosis

## **Prerequisites**

Basic knowledge of mathematics.

## **Teaching form**

Frontal lectures (60 percent) and interactive workshops (30 percent) in presence, online tutorials (10 percent). Use of e-learning platform for additional readings.

## **Textbook and teaching resource**

Scannicchio D. Giroletti E. (2015) Elementi di Fisica Biomedica, Edises, Milano.

## **Semester**

1st Year, 2nd Semester

## **Assessment method**

Take-home written assignment (test with multiple choice and/or open ended questions).  
Oral exam with discussion on the written assignment and on all the topics covered during the lessons.

## **Office hours**

By appointment (via e-mail).

## **Sustainable Development Goals**

GOOD HEALTH AND WELL-BEING | QUALITY EDUCATION

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