UNIVERSITÀ DI PAVIA

Anno Accademico 2021/2022

EXPERIMENTAL PHYSICS (SURNAMES A-K)

Enrollment year	2021/2022
Academic year	2021/2022
Regulations	DM270
Academic discipline	FIS/01 (EXPERIMENTAL PHYSICS)
Department	DEPARTMENT OF BIOLOGY AND BIOTECHNOLOGY "LAZZARO SPALLANZANI"
Course	BIOTECHNOLOGY
Curriculum	PERCORSO COMUNE
Year of study	1°
Period	(01/03/2022 - 14/06/2022)
ECTS	6
Lesson hours	52 lesson hours
Language	Italian
Activity type	WRITTEN AND ORAL TEST
Teacher	MANCINI GIULIA FULVIA - 6 ECTS
Prerequisites	Elements of Mathematics (secondary school level)
Learning outcomes	The principal objective of this course is to provide a basic education in th field of classical physics with some elements of modern physics and some applications of biophysics. At the end of the course, the student will be able to use the proper terminology to describe the phenomena and a rigorous method to explain the foundamentals of physics.
Course contents	Physical quantities and units, vectors, 1 and multi-dimentional motion, momentum, Newton laws, university gravitation law, work, energy and power, circular motion, harmonic oscillator, waves, statics and elements of dinamics of fluids, electric forces, fields and potential, electric capacity, electric current, circuits with continuous and alternate current, magnetic field, Lorentz force, magnetic induction, electromagnetic waves, elements of acoustics, geometrical and wave optics, elements of

	ioniozing radiation and of their biological effects. Laboratory: demonstration of Hooke law, measurement with optical microscope, demonstration of Ohm law.
Teaching methods	The theory lessons are frontal and the notes are made available to students in the Kiro platform. The laboratory part requires the realization of the experiments at the presence of a tutor and the compilation of a report with the data analysis
Reccomended or required readings	F. Borsa, S. Altieri, Lezioni di Fisica con Laboratorio, Libreria C.L.U. Pavia D. Scannicchio, Fisica Biomedica, EdiSES
Assessment methods	Written exam, with the possibility of oral integration. The exam consists in two open questions, 10 multiple choice questions, two exercises (scores: 5+5, 10, 5+5). Questions are about the whole program, student must demonstrate to have basic notions, to know how to concisely explain two topics, and to know how to solve numerical exercises applying methods learned during lessons.
Further information	Written exam, with the possibility of oral integration. The exam consists in two open questions, 10 multiple choice questions, two exercises (scores: 5+5, 10, 5+5). Questions are about the whole program, student must demonstrate to have basic notions, to know how to concisely explain two topics, and to know how to solve numerical exercises applying methods learned during lessons.
Sustainable development goals - Agenda 2030	This teaching contributes to the realization of the UN objectives of the 2030 Agenda for Sustainable Development $lbl_legenda_sviluppo_sostenibile