UNIVERSITÀ DI PAVIA

Anno Accademico 2021/2022

HUMAN GENETICS

Enrollment year	2021/2022
Academic year	2021/2022
Regulations	DM270
Academic discipline	BIO/18 (GENETICS)
Department	DEPARTMENT OF ELECTRICAL,COMPUTER AND BIOMEDICAL ENGINEERING
Course	BIOENGINEERING
Curriculum	Cellule, tessuti e dispositivi
Year of study	1°
Period	1st semester (27/09/2021 - 21/01/2022)
ECTS	3
Lesson hours	23 lesson hours
Language	Italian
Activity type	ORAL TEST
Teacher	OLIVIERI ANNA (titolare) - 3 ECTS
Prerequisites	For the specific purposes of the Human Genetics unit the student should have acquired through the regular attendance of the Biology unit, some basic concepts of cell structure, cell cycle and its regulation, mitosis and meiosis.
Learning outcomes	The course aims to provide students with the basics for understanding the cellular and tissue biology and genetics with special reference to man. For this purpose it is structured in two Units: Biology and Human Genetics. The unit of Human Genetics aims to provide the basics of: the mendelian genetics, the molecular organization of the genes in relation to the organization of the genome, the origin of the genetic variability, the control of gene expression, the genetic control the processes of cell differentiation and animal development, the main techniques of molecular analysis of genes and genomes, the fundamentals of genetic

	engineering.
Course contents	Unit of Human Genetics Mendelism: the basic principles of heredity and extensions of Mendelism. The chromosomal basis of Mendelism. Human karyotype, changes in the chromosome number and structure. Association, crossing over and chromosome maps in eukaryotes and humans. DNA mutation, recombination and repair. Techniques of molecular genetics. Genomics. Applications of molecular genetics and genomics. Defining the concept of the gene with particular reference to human genes. Regulation of gene expression in eukaryotes. Genetic control of the cell cycle: the genetic basis of cancer. Genetic control of differentiation and animal development.
Teaching methods	Both units are conducted in the first half of the semester. The unit of Biology precedes the Human Genetics one. Lectures (hours/year in lecture theatre): 23 Practical class (hours/year in lecture theatre): 0 Practicals / Workshops (hours/year in lecture theatre): 0 The student has at Kiro's site: http://elearning2.unipv.it/engineering/course/index.php?categoryid=13, PDFs of lesson material , additional teaching materials and written test exercises.
Reccomended or required readings	Michael R. Cummings. Eredità principi e problematiche della genetica umana. EDISES, 2014. Michael R. Cummings. Human Heredity: Principles and Issues, 11th Edition.. 2016, Brooks/Cole Cengage Learning.
Assessment methods	Exam mode: Oral. The student will be interviewed on the topics covered during the Human Genetics lectures. We ask the student to know and understand the topics, as well as acquire a proper vocabulary
Further information	for further information anna.olivieri@unipv.it
Sustainable development goals - Agenda 2030	Some of the topics in this course are in line with the 2030 Agenda for Sustainable Development, even if marginally, in particular with Goal 15 - Protect, restore and promote sustainable use of terrestrial ecosystems / halt biodiversity loss. $lbl_legenda_sviluppo_sostenibile