



## ADVANCED MOLECULAR BIOLOGY

<b>Enrollment year</b>	2019/2020
<b>Academic year</b>	2019/2020
<b>Regulations</b>	DM270
<b>Academic discipline</b>	BIO/11 (MOLECULAR BIOLOGY)
<b>Department</b>	DEPARTMENT OF BIOLOGY AND BIOTECHNOLOGY "LAZZARO SPALLANZANI"
<b>Course</b>	
<b>Curriculum</b>	PERCORSO COMUNE
<b>Year of study</b>	1°
<b>Period</b>	1st semester (01/10/2019 - 14/01/2020)
<b>ECTS</b>	6
<b>Lesson hours</b>	48 lesson hours
<b>Language</b>	English
<b>Activity type</b>	WRITTEN TEST
<b>Teacher</b>	GIULOTTO ELENA (titolare) - 4.5 ECTS GIULOTTO ELENA (titolare) - 1.5 ECTS RUIZ HERRERA MORENO AURORA MANUELA - 1.5 ECTS
<b>Prerequisites</b>	Basic concepts in Molecular Biology, Genetics and Biochemistry
<b>Learning outcomes</b>	The objective of the course is to provide knowledge in advanced molecular biology concepts and methods, including genomics, post-genomics and epigenetics. In addition, students will learn the english terminology in the field. Through journal clubs and scientific paper reading with the teacher, students will learn to critically evaluate the scientific literature in the field. Students will be able to apply the knowledge acquired in the most advanced molecular biology methods to their laboratory practice and research activity.
<b>Course contents</b>	Specific subjects include: organization of different genomes; DNA markers; genome maps; sequencing of entire genomes; next generation

sequencing methods and applications; genome sequence interpretation (sequence analysis, experimental approaches, gene identification); defining gene function (gene inactivation, RNAi); genome modification by engineered nucleases; chromosome architecture (chromatin, centromeres, telomeres); comparative genomics; molecular mechanisms of genome evolution. Epigenetics. Model organisms. Production of recombinant proteins.

**Teaching methods**

Lectures, Journals clubs, Discussions with students, problem solving

**Reccomended or required readings**

"Genomes 3", TA Brown, Garland Science Publishing

"From genes to genomes, Concepts and applications of DNA technology", JW Dale, MV Schantz, N Plant, third edition, Wiley-Blackwell

"Gene cloning and DNA analysis, An Introduction" Fifth edition, TA Brown, Blackwell Publishing

**Assessment methods**

Written exam including open questions on general topics and multiple choice questions.

**Further information**

Written exam including open questions on general topics and multiple choice questions.

**Sustainable development goals - Agenda 2030**

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