



# UNIVERSITÀ DEGLI STUDI DI PALERMO

<b>DEPARTMENT</b>	Scienze e Tecnologie Biologiche, Chimiche e Farmaceutiche		
<b>ACADEMIC YEAR</b>	2016/2017		
<b>MASTER'S DEGREE (MSC)</b>	PHARMACEUTICAL CHEMISTRY AND TECHNOLOGIES		
<b>SUBJECT</b>	MOLECULAR BIOLOGY		
<b>TYPE OF EDUCATIONAL ACTIVITY</b>	B		
<b>AMBIT</b>	50322-Discipline Biologiche e Farmacologiche		
<b>CODE</b>	01639		
<b>SCIENTIFIC SECTOR(S)</b>	BIO/11		
<b>HEAD PROFESSOR(S)</b>	TESORIERE LUISA	Professore Ordinario	Univ. di PALERMO
<b>OTHER PROFESSOR(S)</b>			
<b>CREDITS</b>	6		
<b>INDIVIDUAL STUDY (Hrs)</b>	105		
<b>COURSE ACTIVITY (Hrs)</b>	45		
<b>PROPAEDEUTICAL SUBJECTS</b>			
<b>MUTUALIZATION</b>			
<b>YEAR</b>	2		
<b>TERM (SEMESTER)</b>	2° semester		
<b>ATTENDANCE</b>	Not mandatory		
<b>EVALUATION</b>	Out of 30		
<b>TEACHER OFFICE HOURS</b>	<b>TESORIERE LUISA</b> Monday 12:00 14:00 Sede decentrata di Caltanissetta, presso aule del Consorzio Tuesday 09:00 11:00 studio Wednesday 09:00 11:00 studio Thursday 09:00 11:00 studio		

**DOCENTE:** Prof.ssa LUISA TESORIERE

<b>PREREQUISITES</b>	knowledge of cell biology
<b>LEARNING OUTCOMES</b>	Knowledge and ability 'of understanding The student will acquire' knowledge of the biochemical informational molecules, DNA and RNA, both from the structural point of view that functional. Capacity 'to apply knowledge and understanding The student will be' able to apply the knowledge of the molecular processes of replication, gene transcription and protein synthesis for the understanding of the action of drugs whose mechanism of action and 'connected to biochemistry of informational molecules. Making judgments The student will acquire 'the capacity' to integrate the knowledge of the molecular processes of the cell with biochemical and pharmacological issues. Enable 'communication The student must' be able to present general concepts of biomolecular nature in simple terms, and also include a d a non-expert public. Capacity 'Learning The student must' be able to update itself by reading and study of scientific publications dealing with issues related to molecular and cellular biology.
<b>ASSESSMENT METHODS</b>	The student is evaluated through one oral examination. He/she must answer at least three/four questions covering all aspect of the program. The oral examination tends to evaluate wheter the student has developed knowledge, understanding and the ability to integrate the topics within the program. The threshold of sufficiency will be achieved if the student shows knowledge and understanding of the topics at least in general terms with sufficient communicative skills. Below this threshold the exam will be unsatisfactory and student will not pass it. On the contrary, the more the student will interact with the examining board with better expositive skill and deeper knowledge, the more the evaluation will be positive. The assessment is carried out of thirty. It will be a written test "in itinere" on a first part of the program of the course
<b>EDUCATIONAL OBJECTIVES</b>	The educational goal of the Molecular Biology course is to deepen the knowledge of duplication and transcription, of genetic information mechanisms, of protein synthesis, cell cycle and apoptosis. This knowledge is essential in the formation of a degree in chemistry and pharmaceutical technology to the study and understanding of the biological activity of drugs, especially anti-tumor purpose.
<b>TEACHING METHODS</b>	frontal lessons
<b>SUGGESTED BIBLIOGRAPHY</b>	Watson James et al. Biologia molecolare del gene. Settima edizione. Ed. Zanichelli. Allison L. Fondamenti di Biologia molecolare. Ed. Zanichelli

## SYLLABUS

Hrs	Frontal teaching
6	The nucleus and its molecular components: the structure of DNA; structure and function of histone and non-histone proteins
6	Organization of chromatin in the cell nucleus. DNA highly, on average, and not repetitive. Organization of the eukaryotic genome. Transposition
10	The decoding of genetic information: RNA and protein. Transcription and RNA maturation. Changes in the structure of chromatin during transcription. The regulation of transcription in eukaryotes mRNA. Post-transcriptional regulation: snRNA and microRNA.
6	The replication of DNA. The Pol of eukaryotes. The replication factors and PCNA. The eukaryotic replicons and the regulation of replication. Telomeres and telomerase
4	The cell cycle and its regulation. The cyclin-dependent kinases and their role in the cycle progression.
4	Apoptosis: the extrinsic pathway and intrinseca. Caspasi initiators and executors. The proteins of the Bcl2 family and the permeability of the outer mitochondrial membrane in the programmed cell death mechanism.