



UNIVERSITÀ DEGLI STUDI DI PALERMO

DEPARTMENT	Scienze e Tecnologie Biologiche, Chimiche e Farmaceutiche		
ACADEMIC YEAR	2017/2018		
MASTER'S DEGREE (MSC)	PHARMACEUTICAL CHEMISTRY AND TECHNOLOGIES		
SUBJECT	APPLIED BIOCHEMISTRY		
TYPE OF EDUCATIONAL ACTIVITY	B		
AMBIT	50322-Discipline Biologiche e Farmacologiche		
CODE	01548		
SCIENTIFIC SECTOR(S)	BIO/10		
HEAD PROFESSOR(S)	ALLEGRA MARIO	Professore Ordinario	Univ. di PALERMO
OTHER PROFESSOR(S)			
CREDITS	6		
INDIVIDUAL STUDY (Hrs)	105		
COURSE ACTIVITY (Hrs)	45		
PROPAEDEUTICAL SUBJECTS			
MUTUALIZATION			
YEAR	4		
TERM (SEMESTER)	2° semester		
ATTENDANCE	Not mandatory		
EVALUATION	Out of 30		
TEACHER OFFICE HOURS	ALLEGRA MARIO Monday 10:00 12:00 Via Archirafi, 28 Wednesday 10:00 12:00 Via Archirafi, 28 Friday 10:00 12:00 Via Archirafi, 28		

DOCENTE: Prof. MARIO ALLEGRA

PREREQUISITES	The student must possess knowledge on the chemistry of biomolecules and the structure and function of the cell.
LEARNING OUTCOMES	<p>Knowledge and comprehension abilities. By the end of the course, students should be able to demonstrate knowledge and understanding of the theoretical principles of the experimental techniques employed in the biochemical research.</p> <p>Ability to apply knowledge and comprehension Student should be able to choose and apply the most appropriate experimental techniques to answer biochemical research problems.</p> <p>Autonomy of judgement The student must show the ability to formulate judgments on the basis of limited or incomplete information.</p> <p>Communicative abilities The student must present biochemical concepts in a clear way to both general and professional audience.</p> <p>Learning abilities Students should develop the learning skills that allow them to continue studying for the most part in a self-directed or autonomous.</p>
ASSESSMENT METHODS	<p>The student is evaluated through one oral examination. He/she must answer at least three questions covering all aspect of the program.</p> <p>The oral examination tends to evaluate wheter the student has developed knowledge, understanding and the ability to integrate the topics within the program.</p> <p>The assessment is carried out of thirty.</p> <p>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. In particular, to get a score of 30/30 with laude, student must demonstrate to have achieved the objectives in an excellent manner. This term refers to full knowledge of all aspects of the program to be applied in more different, complex and advanced contexts than those of the proper discipline.</p>
EDUCATIONAL OBJECTIVES	The course aims to provide the student with an integrated view of the theoretical principles and experimental techniques employed in the biochemical research. To this end the following topics will be covered: in vitro and in vivo experimental models; centrifugation techniques; electrophoretic, spectroscopic and immunochemical methodologies to quantify biomolecules involved in signal transduction.
TEACHING METHODS	Frontal lessons
SUGGESTED BIBLIOGRAPHY	Wilson, Walker - Biochimica e biologia molecolare: principi e tecniche, IV Edizione, Raffaello Cortina Editore.

SYLLABUS

Hrs	Frontal teaching
2	Introduction to the course and the assessment methods. General overview of the discipline.
2	In vivo experimental models
8	In vitro and ex vivo experimental models.
3	Centrifugation: principles of sedimentation; analytic and preparative centrifugation; density, zonal and isopycnic centrifugation.
2	Protein isolation and purification
2	Protein assays
2	Enzymatic assays
2	Radioimmunoassays: RIA
2	Nucleic acid isolation and purification
2	Immunochemical assays: Enzyme-linked immunosorbent assay, ELISA
4	Immunochemical assays: Western Blotting
4	Flow cytometry
4	Reverse Transcriptase Polymerase Chain Reaction: RT-PCR and real time RT PCR
2	Southern Blotting

SYLLABUS

Hrs	Frontal teaching
2	Northern Blotting
2	Electrophoretic mobility shift assay: EMSA