UNIVERSITÀ DEGLI STUDI DI PALERMO

DEPARTMENT	Scienze e Tecnologie Biologiche, Chimiche e Farmaceutiche
ACADEMIC YEAR	2018/2019
MASTER'S DEGREE (MSC)	PHARMACY
SUBJECT	BIOCHEMISTRY OF ORGANS AND SPECIALISED TISSUES
TYPE OF EDUCATIONAL ACTIVITY	D
AMBIT	20518-A scelta dello studente
CODE	16467
SCIENTIFIC SECTOR(S)	BIO/10
HEAD PROFESSOR(S)	PINTAUDI ANNA MARIA Ricercatore Univ. di PALERMO
OTHER PROFESSOR(S)	
CREDITS	6
INDIVIDUAL STUDY (Hrs)	102
COURSE ACTIVITY (Hrs)	48
PROPAEDEUTICAL SUBJECTS	
MUTUALIZATION	
YEAR	5
TERM (SEMESTER)	2° semester
ATTENDANCE	Not mandatory
EVALUATION	Out of 30
TEACHER OFFICE HOURS	**PINTAUDI ANNA MARIA** Tuesday 10:00 12:00 via Archirafi 28 studio docente Thursday 10:00 12:00 via Archirafi 28 studio docente

DOCENTE: Prof.ssa ANNA MARIA PINTAUDI

PREREQUISITES	Knowledge of structures and functions of the main biological molecules. Knowledge of the main metabolic processes and their regulation. Knowledge of cell paths and signal transduction. Knowledge of anatomic-functional features of some system, organs and highly specialized tissues (immune system, nervous system, liver and adipose tissue).
LEARNING OUTCOMES	Ability to apply knowledge and comprehension : The student must demonstrate his ability to complete his new knowledge with the one acquired in previous courses of biomedical topics (Physiology, Pathology, Pharmacology) Autonomy of judgement: The student must be able to critically discuss the topics of the course, autonomously evaluating them on the base of information gathered both during the course and after a careful and deep study of the suggested texts. Communicational abilities : The student must express with clarity and a proper vocabulary, showing his ability to use biomedical scientific terminology. Learning abilities : At the end of the course, the student must show an increase in his biochemical knowledge about the course topics. In particular, he must show to have learned: 1. The interrelations among the various metabolic paths in various physio-pathological conditions, and the mechanisms the hormones use to coordinate energetic metabolism. 2. The biochemical mechanisms at the base of the activation processes of the innate and adaptive immunity cells. 3. The main biochemical-functional aspects of the liver and his role in energetic metabolism. 4. The main biochemical-functional aspects of the adipose tissue and the relation between metabolism and immune system. 5. The main biochemical-functional aspects of Central Nervous System, with specific focus on the hematohencephalic barrier and the neurogenesis process.
ASSESSMENT METHODS	The final score will be given after an oral exam, in which the student has to answer at least three questions about the topics of the program, with reference to the recommended texts. The oral exam aims to verify if the student has acquired the knowledge expected by the programme of the course; it will also evaluate his elaboration abilities and his autonomy of judgement about the disciplinary contents. Students will have to express the topics in a clear and articulated way, using appropriate scientific vocabulary. The score is expressed using a 30-point scale (from min 18/30 to max 30/30 cum laude) The student gains a minimum range score (18-20/30) after showing general knowledge and comprehension of the treated topics, and expressing them with proper scientific vocabulary, even if not adequately articulated. The score will be increased (range score from 20/30 to 28/30) the more the candidate shows a deep knowledge of the topics, coming both from the information he acquired during the course and from a precise and deep personal study of the recommended texts, and also if he shows autonomy of judgement and comprehension of the applicable properties of the newly acquired knowledge. Positive scores will also be given to a clear and articulated presentation, along with the correct use of scientific vocabulary. The score of 30 and 30 cum laude will be gained by the candidate who shows optimal knowledge of the topics, which he expresses in a clear and articulated way with optimal language skills and good analytical skills, showing his judgement autonomy and his application ability of the newly acquired knowledge.
EDUCATIONAL OBJECTIVES	The course is divided in two parts. The first part is related to Metabolic Biochemistry, analyzing the molecular functioning mechanisms of the hormones involved in energetic metabolism in various physio-pathological conditions (fasting, postprandial state, physical exercise, diabetes). The second part, essentially about Functional Biochemistry, will deal with the molecular functioning aspects of some systems, organs and specialized tissues (immune system, nervous system, liver and fat tissue).
TEACHING METHODS	Frontal lessons
SUGGESTED BIBLIOGRAPHY	M.Lieberman, A. Marks - Biochimica Medica - II Edizione. Casa Editrice Ambrosiana.

SYLLABUS

Hrs	Frontal teaching
9	Biochemistry of the hormones which regulate the energetic metabolism: insulin, glucagon, somatostatin, growth hormone, catecholamines, glucorticoids, thyroid hormones, gastrointestinal hormones. Nervous signals regulating insulin secretion and counter regulatory hormones. Energetic homeostasis.

SYLLABUS

Hrs	Frontal teaching
7	Biochemistry of muscular tissue. Energetic metabolism of scheletal muscle at rest and during physical exercise, energetic metabolism of cardiac muscle in normal conditions.
6	Biochemistry of the liver: anatomical-functional characteristics, the role of the liver in energetic metabolism, detoxification processes.
8	Biochemistry of adipose tissue: anatomical-functional characteristics, secretory function. Correlations between immune system and metabolism. Role of the adipose tissue in chronic inflammatory diseases.
10	Biochemistry of the immune system: molecular mechanisms of cell activation in innate immunity (macrophages, neutrophils, endothelial cells and mastocytes) and acquired immunity (T lymphocytes, B lymphocytes, dendritic cells).
8	Biochemistry of the nervous system: anatomic-functional charactertistics, metabolism. Ematohencephalic barrier. Neurogenesis.