

Biochemistry

BIOCHEMISTRY			
FACULTY	HEALTH SCIENCES		
DEPARTMENT	NURSING		
LEVEL OF EDUCATION	UNDERGRADUATE		
LESSON CODE	0805.2.011.0	SEMESTER OF STUDIES	2nd
COURSE TITLE	BIOCHEMISTRY		
BIOCHEMISTRY			
SELF-ENDED TEACHING ACTIVITIES		HOURS OF TEACHING / WEEK	CREDIT UNITS
Theory		3	
Coaching school			
Laboratory			
Clinical exercise			
Total		3	4
COURSE TYPE:	COMPULSORY		
PREREQUISITE COURSES:	NO		
LANGUAGE OF TEACHING and EXAMINATIONS:	Greek		
THE COURSE IS OFFERED TO ERASMUS STUDENTS:	NO		
WEBSITE COURSE	https://eclass.hmu.gr/courses/NURS227/		
Learning results			
<p>The aim of the course is to understand the basic metabolic routes related to energy production, release and storage within the cell, the interactions for homeostasis, growth and function.</p> <p>After completing the course, students will be able to:</p> <ul style="list-style-type: none"> • know the basic metabolic routes and the underlying mechanisms towards the energy production, release and storage within the cell • recognize the structure of the nucleic acids and to describe their synthetic routes • deeply understand the flow mechanisms of the genetic information • categorize the proteins depending on their functional role • learn the purification and separation techniques of protein samples, as well as their selectivity • understand the pivotal role of enzymes and their effect on the execution of biochemical reactions • know the building elements of macromolecules and their metabolism fundamentals • describe the role of human organs 			
General Skills			

Search, analysis and synthesis of data and information using the appropriate technology; autonomous working skills; collaborative working skills; provision of independent and critical thinking	
Course content - Theory outline	
1 st week	Structure and function of proteins
2 nd week	Types of proteins: Structural - functional
3 rd week	Nucleic acids, chemical composition, flow of the genetic information
4 th week	Lipids and cellular membrane
5 th week	The structure of saccharides - hydrocarbons
6 th week	Introduction to metabolic pathways – ATP the global energy currency
7 th week	Metabolic pathways of hydrocarbons – glycolysis - glyconeogenesis
8 th week	Oxidative energy release from fuel molecules and storage as reduced coenzymes
9 th week	Acetyl coenzyme A and its role. The Krebs cycle and glyoxylic acid
10 th week	The electron transport chain – oxidative phosphorylation
11 th week	The metabolism of fatty acids and lipids – of proteins and aminoacids – The urea cycle
12 th week	The metabolism of nucleotides
13 th week	The role of human organs and homeostasis – Metabolism regulation, vitamins and trace elements, hormones: Classification, action mechanisms and disorders
TEACHING and LEARNING METHODS - EVALUATION	
TEACHING METHOD	1) Traditional lectures using powerpoint software 2) Video conference 3) Discussion with students
USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES	Slides show. Video view. Use of the e-class electronic platform to store presentations in digital format for easy access by students. Communication with students on issues related to the educational process through the same platform
TEACHING ORGANIZATION	Activity Semester workload 120 Lectures (total 13x3) Total course (13x3) = 39
STUDENT EVALUATION	Theoretical part of the course 30% from the midterm written assessment 70% from a written final exam
RECOMMENDED BIBLIOGRAPHY (into Greek language)	
<ul style="list-style-type: none"> • Harper's Εικονογραφημένη βιολογική χημεία, Harper H., R. K. Murray, D.A. Bender, K.M. Botham, Επιμέλεια: Α.Γ. Παπαβασιλείου. Εκδότης BROKEN HILL PUBLISHERS LTD, 1η έκδοση/2011 • ΒΙΟΧΗΜΕΙΑ, Έκδοση: 1η/2017 Συγγραφείς: Jeremy M. Berg, John L. Tymoczko, Gregory J. Gatto Jr., Lubert Stryer ISBN: 978-960-524-495-8 Τύπος: Σύγγραμμα Διαθέτης (Εκδότης): ΙΤΕ ΠΑΝΕΠΙΣΤΗΜΙΑΚΕΣ ΕΚΔΟΣΕΙΣ ΚΡΗΤΗΣ • Lehninger's Βασικές Αρχές Βιοχημείας 2η έκδοση, Έκδοση: 2/2018 Συγγραφείς: Nelson David L., Cox Michael M. ISBN: 9789925563203 Τύπος: Σύγγραμμα Διαθέτης (Εκδότης): BROKEN HILL PUBLISHERS LTD 	