

Course unit title:	Biochemistry		
Course unit code:	NUR104		
Type of course unit:	Compulsory		
Level of course unit:	Bachelor (1 st Cycle)		
Year of study:	1		
Semester when the unit is delivered:	1 (Fall)		
Number of ECTS credits allocated :	5		
Name of lecturer(s):	Pantelidou Maria		
Learning outcomes of the course unit:	<ol style="list-style-type: none"> 1. Identify the importance and contribution of the sector in advance of medicine and pharmacy and health in general 2. Explain the chemical composition and biological role of the main biomolecules 3. Describe the basic functions of the human body and the metabolism processes 4. Explain the biochemical basis of disease 5. Explain finding from data analysis 		
Mode of delivery:	Face-to-face		
Prerequisites:	None	Co-requisites:	None
Recommended optional program components:	None		
Course contents:	<ul style="list-style-type: none"> • Introduction to Biochemistry and the basic concepts: Atoms, biological molecules, chemical bonding, cells and their organization in the body and the organic molecules that are composed Acidic Solutions, basic solutions and pH. Alkalicity and acidity of chemical and biological solutions. Solutions molarity Thermodynamics. • Proteins: Amino acids, peptides, polypeptides and protein structure and function Peptide bonds Protein 3-D structure Protein functional and diversity • Enzymes: Enzymatic reactions. Enzyme active site. Enzymes and diagnosis: clinical applications. • Vitamins and Coenzymes • Carbohydrates The role and the function of carbohydrates in the cells The structure of monosaccharides, disaccharides and polysaccharides The structure and the role of glucose into cells and metabolism The structure of lactose, maltose, sucrose, glycogen, starch and cellulose • Lipids and Cellular Membranes The role and the function of lipids in the cells The structure and function of fatty acids, phospholipids, triglycerides and cholesterol The structure of cell membrane • Metabolism-Energy Anabolism and catabolism in the human body The biological modules that store and supply energy to cells Glycolysis, gluconeogenesis and tricarboxylic acid cycle Electron transfer and oxidative phosphorylation Glycogen metabolism. Hormonal regulation of glucose blood level 		

	<p>Metabolism of: fatty acids, cholesterol, amino acids, nucleotides. Hormonal control and regulation of metabolism Metabolic disorders</p> <ul style="list-style-type: none"> • Laboratory: Solution concentration/molarity. Molecule chemical bonds. Peptide bonds. Glycosidic bonds. Acids and Bases and pH. Enzymatic reactions. Pepsin and protein breakdown. Metabolism. Medical Biochemistry (Case studies)
Recommended and/or required reading:	
Textbooks:	<ol style="list-style-type: none"> 1. Βιοχημεία: Berg M.J., Tymoczko L.J., Stryer L. (Εκδόσεις Πανεπιστημίου Κρήτης), 2017. 2. Εισαγωγή στη Βιοχημεία: Ι. Γ. Γεωργιάτσος (Εκδόσεις: Γιαχούδη) 7η έκδοση, Θεσσαλονίκη 2013).
References:	<p>Βιοχημεία: Lehninger Βασικές αρχές Βιοχημείας: D.L. Nelson, M.M. Cox (Μετάφραση: Αθ. Παπαβασιλείου, Ιατρικές Εκδόσεις Π.Χ. Πασχαλίδης) Αθήνα 2011.</p>
Planned learning activities and teaching methods:	<p>The taught part of course is delivered to the students by means of lectures, conducted with the help of computer presentations. Lecture notes and presentations are available through the web for students to use in combination with the textbooks.</p> <p>Lectures are supplemented with laboratory work. During laboratory sessions, students are demonstrated everything that were taught in the lecture sessions.</p>
Assessment methods and criteria:	<ul style="list-style-type: none"> • Participation: 10% • Laboratory Work: 10% • Test: 30% • Final Exam: 50%
Language of instruction:	Greek
Work placement(s):	No