

## Introduction to Cell Biology

HEALTH SCIENCES			
FACULTY	HEALTH SCIENCES		
DEPARTMENT	NURSING		
LEVEL OF EDUCATION	UNDERGRADUATE		
LESSON CODE	0805.1.009.0	SEMESTER OF STUDIES	1 <sup>st</sup>
COURSE TITLE	INTRODUCTION TO CELL BIOLOGY		
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	<a href="https://eclass.hmu.gr/courses/NURS226/">https://eclass.hmu.gr/courses/NURS226/</a>		
Learning results			
<p>The course aims to introduce students in the fundamentals of cell organization by biomolecules and their role.</p> <p>After completing the course, students will be able to:</p> <ul style="list-style-type: none"> <li>• describe the basic fundamentals of the cell organization</li> <li>• understand the structure, chemical composition and the role of biomolecules</li> <li>• know the basic biological meanings and the cell's lifecycle in general</li> <li>• recognize the molecular mechanisms of the basic cell function</li> <li>• know the central tenet of Biology which implies on the replication of the genetic material up to the expression of the genetic information</li> <li>• describe any deviation from the central tenet of Biology</li> <li>• understand the stages of the genetic material organization</li> <li>• know the basic rules of the genetic inheritance</li> </ul>			
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			

<b>Course content - Theory outline</b>	
1 <sup>st</sup> week	Cell as a unit of life, the cell's chemical composition – chemical composition of biological systems – water and properties – basic structure of macromolecules
2 <sup>nd</sup> week	Cell types: The prokaryotic cell – bacteria – viruses – the eukaryotic cell
3 <sup>rd</sup> week	Structure, organization and function of proteins
4 <sup>th</sup> week	DNA replication, the flow of genetic information, organelles, polymerases – DNA repair
5 <sup>th</sup> week	Synthesis and RNA transformation (transcription) – Initiation, regulation, elongation and termination of transcription – The case of eukaryotic and prokaryotic cells
6 <sup>th</sup> week	mRNA translation – protein synthesis, regulation of their function and degradation, ribosomes
7 <sup>th</sup> week	Organization of the genetic material, chromatin - chromosome, nucleosome
8 <sup>th</sup> week	Genetic changes in the eukaryotic cells' genome – Racial genes' reproduction/redistribution
9 <sup>th</sup> week	Biological membranes, structure, function and delivery
10 <sup>th</sup> week	The cell's organelles: Endoplasmic reticulum, Golgi device, lysosomes and cellular digestion
11 <sup>th</sup> week	The cell's organelles: Mitochondria - chloroplasts – structure, function and self-replication – Energy production (oxidative phosphorylation)
12 <sup>th</sup> week	Cytoskeleton and cytokinesis
13 <sup>th</sup> week	Cell cycle: Mitosis – meiosis - apoptosis
<b>TEACHING and LEARNING METHODS - EVALUATION</b>	
<b>TEACHING METHOD</b>	1) Traditional lectures using powerpoint software 2) Video conference 3) Discussion with students
<b>USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES</b>	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
<b>TEACHING ORGANIZATION</b>	<b>Activity</b> <span style="float: right;"><b>Semester workload 120</b></span> Lectures (total 13x3) <b>Total course (13x3) = 39</b>
<b>STUDENT EVALUATION</b>	<b>Theoretical part of the course</b> 30% from the midterm written assessment 70% from a written final exam
<b>RECOMMENDED BIBLIOGRAPHY (into Greek language)</b>	
<ul style="list-style-type: none"> <li>• Βιολογική Χημεία. Harper H., Robert K. Murray, David A Bender, Kathleen M. Botham. 1η έκδοση/2011, ISBN: 978-9604-890-47-7 Εκδόσεις BROKEN HILL PUBLISHERS LTD</li> <li>• Βασικές Αρχές Κυτταρικής Βιολογίας. 4η έκδοση, Alberts B., Bray D., Hopkin K., Johnson A., Lewis J., Raff M., Roberts K., Walter P ISBN: 978-9963-274-25-3, Εκδότης: BROKEN HILL PUBLISHERS LTD 4η έκδοση, 2018</li> <li>• Μοριακή Βιολογία του Κυττάρου. Alberts B., Johnson A., Lewis J., Morgan D., Raff M., Roberts K., Walter P., Wilson J., Hunt T. Γενική επιστημονική επιμέλεια: Ισιδώρα Παπασιδέρη, Utopia, 2018.</li> <li>• Βιολογία του κυττάρου. Μοριακή προσέγγιση. Μαρμαράς Β., Λαμπροπούλου Μ., Εκδότης Τυπόραμα – Αγοργιανίτης Σπ. Μον. ΕΠΕ, 5<sup>η</sup> έκδοση, Πάτρα, 2005.</li> <li>• Βιολογία. Starr Cecie, Evers Christine, Starr Lisa. Μετάφραση- επιμέλεια ελληνικής έκδοσης Μαρία Χατζάκη κ.ά 1η έκδοση στα ελληνικά 2014. Εκδόσεις Utopia 2014</li> </ul>	