



UNIVERSITY OF
PATRAS
ΠΑΝΕΠΙΣΤΗΜΙΟ ΠΑΤΡΩΝ

DEPARTMENT OF PHARMACY

SCHOOL OF HEALTH SCIENCES

UNIVERSITY OF PATRAS
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DEPARTMENT OF PHARMACY
UNDERGRADUATE STUDIES' COURSES



COURSE DESCRIPTION: **CELL BIOLOGY**
COURSE CODE: **PHA-A14-NEW**

CELL BIOLOGY
COURSE DESCRIPTION

1. GENERAL

SCHOOL	HEALTH SCIENCES		
DEPARTMENT	PHARMACY		
LEVEL OF COURSE	UNDERGRADUATE		
COURSE CODE	PHA-A14-NEW	SEMESTER OF STUDIES	1st
COURSE TITLE	CELL BIOLOGY		
INDEPENDENT TEACHING ACTIVITIES		TEACHING HOURS PER WEEK	ECTS CREDITS
Lectures		4	5
COURSE TYPE	Scientific Field course		
PREREQUISITE COURSES:	-		
TEACHING AND ASSESSMENT LANGUAGE:	Greek		
THE COURSE IS OFFERED TO ERASMUS STUDENTS	Yes [Instructed/Guided self study in english for Erasmus+ Students]		
COURSE WEBPAGE (URL)	http://www.pharmacy.upatras.gr/images/DS/PHA-A14-EN.pdf		

2. LEARNING OUTCOMES

Learning outcomes
<p>New technologies are being exploited. High daily attendance at the e-class platform. This is the main introductory course in Cell Biology. The subject matter of the course aims at introducing the students to the basic concepts of Cell Biology.</p> <p>It also refers to the structure and chemical composition of cells, the structure and function of proteins and membranes, membrane transport and intracellular compartments and transport, cellular communication, cytoskeleton, cell growth and division and cell cycle control, and cell death, cancer cell biology, molecular mechanisms of regulation and tissues.</p> <p>Upon successful completion of the course, the student will be able to:</p> <ul style="list-style-type: none"> • Have understood the basic concepts of Cell Biology • Have understood concepts relating to the structure and chemical composition of cells, the structure and function of proteins and membranes • Have been informed and understood about membrane transport and intracellular compartments and transport, cellular communication and cytoskeleton • Have understood the mechanisms that govern cell growth and division, cell cycle control and cell death, cancer cell biology • Have understood the molecular mechanisms of regulation and the structure of tissues

General Abilities

- Autonomous Work
- Teamwork
- Presentations
- Critical thinking.
- Search, analysis and synthesis of data and information, using the necessary technologies and laboratory-experimental tools.
- Generation of new research ideas.
- Promotion of free, creative and inductive thinking.

3. COURSE CONTENT

- Introduction to cells.
- Chemical composition of cells.
- Structure and function of proteins.
- Structure of the membranes.
- Membrane transfer.
- Intracellular compartments and transport.
- Cellular communication.
- Cytoskeleton.
- Cell growth and division.
- Cell cycle control and cell death.
- The core.
- Chromosomes and gene regulation.
- Biology of the cancer cell. Molecular regulating mechanisms.
- Tissues.

The main objectives of the course are:

- Understanding the basic concepts.
- Understanding the basic and modern technological tools and methodologies used in Cell Biology.
- Key experiments are developed that have led to fundamental discoveries in the field of Cell Biology. The goal is to develop critical thinking and ability to draw conclusions based on experimental data.
- Emphasis is given to the importance of Cell Biology for Pharmacy and Pharmaceutical Sciences.
- Examples of new drug development are developed on the basis of progress and modern discoveries in the field of Cell Biology.
- New technologies are being exploited. High daily attendance at the e-class platform.

4. TEACHING AND LEARNING METHODS - ASSESSMENT

TEACHING METHOD	Lectures (amphitheater) Face to face
USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES	Support Learning Process via the e-class platform 1. E-class 2. Educational Videos 3. NCBI / PubMed: https://www.ncbi.nlm.nih.gov/pubmed

TEACHING ORGANIZATION	Teaching Method	Semester Workload
	Lectures	52
	Independent Study	73
	Total number of hours for the Course (25 hours of work-load per ECTS credit)	125
STUDENT ASSESSEMNT	<p>Evaluation Method and Criteria: The final grade is the sum of the following evaluations: I. Written Final Exam (100% or 90% for oral candidates)</p> <ul style="list-style-type: none"> • Written final examination on topics of growing difficulty, which broadly cover the curriculum (subject matter) developed during lectures. • Topics include questions, multiple choice, short answer questions, and problems. • The level of knowledge, understanding, as well as the critical ability and the ability to solve problems and to draw conclusions are examined. • The final examinations of previous years are available to students at the e-class platform and/or during lectures, where they are presented in a representative manner and answered with the participation of the students. <p>II. Group and individual work on selected/ specific topics with directed study and oral presentation (10%, voluntary) Assessment Language: Greek Assessment Language for ERASMUS students: English</p> <p>Written final exam including:</p> <ul style="list-style-type: none"> • Multiple choice questions • Comprehension questions 	

5. RECOMMENDED LITERATURE

<p>Teacing Material:</p> <ol style="list-style-type: none"> 1. «The Cell – A molecular approach», GM Cooper and RE Hausman 2. «Essential Cell Biology», B Alberts, D Bray, K Hopkin A Johnson, J Lewis, M Raff, K Roberts and P Walter <p>Suggested papers [available in eclass]:</p> <ul style="list-style-type: none"> • Hanahan D, Weinberg RA. The hallmarks of cancer: the next generation. Cell 144: 646-674, 2011 [Hanahan D, Weinberg RA. The hallmarks of cancer. Cell 100: 57-70, 2000] Specific Aim: To teach state-of-the art concepts pertaining to the "cancer cell" and how advances in biology can help improve therapy, e.g. tumor microenvironment (antiangiogenic and other drugs), CSCs (drug resistance), etc • Lord CJ, Ashworth A. Biology-driven cancer drug development: back to the future. BMC Biol 8: 38, 2010 Specific Aim: To make the connection between basic biology and drug discovery and development; this is
