



Course Syllabus

Course Code	Course Title	ECTS Credits
BIOL-122E	Κυτταρική Βιολογία/Cell Biology	6
Prerequisites	Department	Semester
None	Life and Health Science	Fall/Spring
Type of Course	Field	Language of Instruction
Compulsory	Pharmacy	Greek/English
Level of Course	Lecturer(s)	Year of Study
1 st Cycle	Dr Panayi Tolis	1
Mode of Delivery	Work Placement	Corequisites
Face-to-face	N/A	N/A

Course Objectives:

The objectives of the course are:

- Introduce the foundational theories, concepts and practices in cell biology
- Give to students the understanding of the structure and function of the cell as the basic unit of life
- Explain to students the differences between eukaryotic and prokaryotic cells as well as Viruses
- Explain to students the ways eukaryotic cells move substances through the cell membrane, how they communicate between them, as well as the involvement of the cytoskeleton in these processes

Learning Outcomes:

After completion of the course students are expected to be able to:

- Start developing the skills necessary for the design, presentation, analysis and interpretation of experimental data
- Compare and contrast structures of prokaryotic and eukaryotic cells and understand the significance of these differences in patterns of evolution and treatment of disease.
- Explain the structure and function of various types of eukaryotic cells.
- Understand the relationship between the structure of organelles and their function – i.e. “form follows function” at the cellular level.
- Understand the methods of moving substances in and out of the cell.
- Understand cell communication and connection.

- Explain the processes of cell division, cell cycle and differentiation.
- Appreciate the structure and division of viruses, as well as their differences from eukaryotic and prokaryotic cells.
- Develop the skills to search the literature for, read and understand scientific publications on course related information.
- Develop laboratory skills related to cell biology techniques, equipment, instruments and projects

Course Content:

Introduction to prokaryotic and eukaryotic cells and evolution of cells. Organic molecules and chemical composition of cells. Organelles of the eukaryotic cell (nucleus, ribosomes, endomembrane system, mitochondria, chloroplasts, cytoskeleton, extracellular structures). Cell membrane and movement through the membrane (secretion, phagocytosis, pinocytosis). Cell communication. Cell cycle and division (mitosis, meiosis). Structure and division of prokaryotic cells. Structure and division of viruses. Instruments and techniques for the study of cells and organisms.

Laboratory and Workshops:

Exercise 1: Microscopy and Microscopes

Exercise 2: Eukaryotic cells: Structure and Function

Exercise 3: Prokaryotic cells: Structure and Function

Learning Activities and Teaching Methods:

Lectures, class discussion, assignments, laboratory and laboratory reports, Workshops

Assessment Methods:

Final exam, Midterm exam, course work

Required Textbooks / Readings:

Title	Author(s)	Publisher	Year	ISBN
Biology	Campbell-Reece et al	Pearson, Benjamin, Cummings	2008	9780805368444

Βασικές Αρχές Κυτταρικής Βιολογίας	Alberts B.,Bray D.,Hopkin K.,Johnson A.,Lewis J.,Raff M.,RobertsK.,Walter P	BROKEN HILL PUBLISHERS	2015	9789963258277
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Recommended Textbooks / Readings:

Title	Author(s)	Publisher	Year	ISBN
Βιολογία Κυτάρου	ΒΑΣΙΛΗΣ ΜΑΡΜΑΡΑΣ & ΜΑΡΙΑ ΛΑΜΠΡΟΠΟΥΛΟΥ- ΜΑΡΜΑΡΑ	ΤΥΠΟΡΑΜΑ Αγοργιανίτης Σπ. Μον. ΕΠΕ	2005	9789607620132