



وكالة الجامعة للشؤون التعليمية  
البرامج الدراسية والتطوير

( 5 )

مختصر توصيف المقرر

Cell Biology

## :(Course Information) \*

بيولوجية الخلية	:
BIOL-111	:
أحياء عامة BIOL-101	:
لا يوجد	:
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3	:
<b>Module Title:</b>	<b>Cell Biology</b>
<b>Module ID:</b>	BIOL-111
<b>Prerequisite (Co-requisite):</b>	General Biology, BIOL-101
<b>Co-requisite :</b>	N/A
<b>Course Level:</b>	2 <sup>nd</sup> level
<b>Credit Hours:</b>	3 Hours

## Module Description

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The cell biology course provides a basic understanding of the structure and function of cellular organelles and components, and the functional interaction of the cell with its environment. The course stresses a novel approach to the study of the cell within its social context and imparts onto students the concept that the cell is no longer perceived as “the smallest unit of function” but it is rather the cell and its microenvironment, including neighboring cells, the extracellular matrix and the soluble mediators. The concept of “dynamic exchange” is stressed throughout the course.

## Module Aims

أهداف المقرر:

1	Knowledge of basic concepts of cell biology and of those properties that are common to most eukaryotic cells.	1
2	Ability to analyze and interpret the behavior of cells in their environment in multicellular organisms with emphasis on cell-cell interactions, cell-extra cellular matrix interactions, and soluble signaling.	2

3	Capacity to solve problems and evaluate the relevance of experimental data.	3
4	Evidence-based critical thinking in cell biology	4
5	Appreciation of the depth and scope of the ever developing field of cell biology. "The more the students know about the cell, the more they know how little they know".	5

### Learning Outcomes:

مخرجات التعليم:

1	Basic chemical composition of living matter.	1
2	Structural characteristics of prokaryotic and eukaryotic cells.	2
3	Mechanics of membrane transport.	3
4	Basic concepts of bioenergetics, cellular respiration, nucleic acids and basic concepts of protein synthesis.	4
5	Mechanics of cellular reproduction.	5

### Course Contents:

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ساعات التدريس (Hours)	الأسابيع (Weeks)	(Subjects)
6	2	Introduction to cell biological chemistry ( Organization of matter - Bonding between atoms - Water & its properties - Acids, bases, & salts - Biochemical Compounds).
9	3	Cell structure and function (Cell theory - Composition and function of cell structures - Cell membranes and membranous organelles - Comparison of prokaryotic and eukaryotic cells - Comparison of plant and animal cells).
6	2	Cellular transport (Structure of cell membrane - Diffusion and osmosis - Facilitated and active transport - Endocytosis and exocytosis)
6	2	Bioenergetics (Metabolism - Enzymes - Energy and ATP - Hydrogen and electron carriers).
6	2	Cellular respiration (Aerobic respiration - Anaerobic respiration - Fermentation - Mitochondrial structure).
6	2	Cellular reproduction (Binary fission - Chromosome structure - Cell Cycle - Stages of mitosis - Stages of meiosis).

6	2	Protein synthesis (Structure of DNA and its replication - Structure of RNA - Protein synthesis).
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### Textbook and :

#### References:

ISBN	Publishing Year	Publisher	اسم المؤلف (رئيسي) Author's Name	Textbook title
978-0-8153- 4130-7	2010	Garland Science, Taylor & Francis Group	Alberts Bray Hopkin	Essential Cell Biology
	Publishing Year	Publisher	اسم المؤلف (رئيسي) Author's Name	Reference
978-0-323-34126-4	2017	EL SEVIER	Thomas D. Oollard	Cell Biology
9781284047608	2016	Navigate 2 Advantage Access	George Plopper	Principles of Cell Biology
978-1-118-29883-1	2012	Wiley-Blackwell	Stephen R. Bolsover	Cell Biology: A Short Course

