The University of Jordan

Accreditation & Quality Assurance Center

COURSE Syllabus

1	Course title	Cell Biology
2	Course number	0304231
3	Credit hours (theory, practical)	2 theory
	Contact hours (theory, practical)	2 h lectures /week
4	Prerequisites/corequisites	Genera Biology 2(0304102)
5	Program title	Biological Sciences
6	Program code	
7	Awarding institution	The University of Jordan
8	Faculty	Science
9	Department	304231
10	Level of course	200
11	Year of study and semester (s)	2016
12	Final Qualification	BSc
13	Other department (s) involved in teaching the course	
14	Language of Instruction	English
15	Date of production/revision	First semester 2016

16. Course Coordinator:

Office numbers, office hours, phone numbers, and email addresses should be listed.
Office numbers :Biology Building 311
office hours: Sun Tue Thu: 9-9:30
phone numbers: 0776831802
email: zshraideh@ju.edu.jo

17. Other instructors:

Office numbers, office hours, phone numbers, and email addresses should be listed.

18. Course Description:

As stated in the approved study plan.

Course Description

0304231 CELL BIOLOGY

This course deals with the cell as a unit of structure of all living organisms. It includes: Cell theory. Principles and technology of microscopy, biological membranes: Ultrastructure and function and their role in controlling cellular responses to cell matrix. Intracellular compartments: Endoplasmic reticulum, golgi

complex, lysosomes and pearoxiyoms ultrastructure and functioum. Energy transformers: Mitochondria and chloroplasts. The course concentrates also on the nuclear ultrastructure. Chromatin and DNA packaging. Nucleolus and ribosome's biosynthesis. Cell cycle and mechanism of cell division. Also studies cellular junctions. Adhesions and extracellular structures. Cell-to-substratum interactions. Transient differentiations associated with surface activity. Motile cell processes. Plant cell wall and plasmodesmata and bacterial cell wall. The course investigates also the structural elements of cytoskeleton, microtubules, microfilaments and intermediate filaments ultrastructure and functions. Cellular movement: motility and contractility and cell-to cell signaling. The course deals also with cellular aspects of cancer, aging and death.

19. Course aims and outcomes:

A- Aims:

Course objectives (Cell Biology 0304231)

Knowledge and Understanding:

Students will have an understanding of the biology of cells, especially eukaryotic cells .

B- Intended Learning Outcomes (ILOs): Upon successful completion of this course students will be able to …

1. Cognetive / Intellectual Analysis:

Students will be able to critically assess primary and applied research relating to The biology of cells.

2.Subject-specific and practical skills:

Students will be able to discuss topics relating to cell biology with others in a meaningful way.

3. General transferable skills:

Students will understand the principles underlying the application of several Laboratory techniques in cell biology research.

20. Topic Outline and Schedule:

Lecture Number	Topic	pages
1:	Chapter 1: A Preview of the Cell Cell Theory Emergence of Modern Cell Biology	1-9
2-3:	Appendix : Principles & Techniques of Microscopy The light Microscopes, Transmission Electron Microscopy Scanning Electron Microscopy	A1-A26
4:	Chapter 4: Cells and Organelles: Overview. Eukaryotes vs prokayotes.	75-82
5-6:	Chapter 7: Membranes:Their Structure , Function & Chemistry Models of Membrane Structure Membrane Lipids : The Fluid Part of the Model Membrane Proteins: The Mosaic Part of the Model	156-189
7-9:	Chapter 8: Transport Across Membranes: Overcoming the Permeability Parier Cells& Transport Processes Simple Diffusion: Unassisted Movement Down the Gradient Facilitated Difusion: Protein-Mediated Movement Down the Gradient Active Transport: Protein-Mediated Movement Up the Gradient Examples of Active Transport	194-214
10:	First Hour Exam At week # 6	
11-16:	Chapter 12: The Endomembrane Peroxisomes The Endoplasmic Reticulum. The golgi Complex. Roles of ER& Golgi Complex in Protein Glycosylation& Trafficking. Exocytosis and Endocytosis: Transporting Material Across the Plasma Membrane. Coated vesicles in Cellular Transport Processes. Lysosomes and Cellular Digestion. The Plant Vacuole: A Multifunctional Organelle. Peroxisomes.	324-360
17-18:	Chapter 14: Signal Transduction Mechanisms II: Messengers and Receptors. Chemical Signals and Cellular Receptors. G Protein-Linked Receptors. Protein Kinase-Associated Receptors. Growth Factors as Messengers	392-412

19-21: Chapter 15 : Cytoskeletal System 422-447
The Major Structural Elements of the Cytoskeleton
Techniques for Studying the Cytoskeleton. Microtubules. Microfilaments
Intermediate filaments.
22-24: Chapter 16: Cellular Movement: Motility and Contractility 448-477
Motile Systems. Microtubule-Based Motility
Actin-Based Movement: The Myosins. Filament- Based Movement
In Muscle. Actin-Based Motility in Nonmuscle Cells
25: Midterm Exam At week # 12
26-28: Chapter 17:Beyond the Cell: Cell Adhesion, 477-501
Cell Junctions, and Extacellular Structures.
The Extracellular Matrix of Animal Cells. Cell-Cell Recognition
Cell Junctions. The Plant Cell Surface
29-30: Chapter 18: The Structural Basis of Cellular Information: DNA, 527-544
Chromosomes, and the Nucleus
DNA Packaging. The Nucleus

Topic	Week	Instructor	Achieved ILOs	Evaluation Methods	Reference

21. Teaching Methods and Assignments:

Development of ILOs is promoted through the following teaching and learning methods:

1. 2 / 1h lectures/ week

- Classroom with whiteboard and projection facilities
- College library
-Internet resourses

22. Evaluation Methods and Course Requirements:

Opportunities to demonstrate achievement of the ILOs are provided through the following assessment methods and requirements:

1. 3/ 1h exams
2. Reports and discussions

23. Course Policies:

A- Attendance policies:
Attendance of lectures is obligatory

B- Absences from exams and handing in assignments on time:

Not accepted

C- Health and safety procedures:

Strict and are followed up

D- Honesty policy regarding cheating, plagiarism, misbehavior:

Very strong.

E- Grading policy:

50 %(2 one h exams) , 50% final exam

F- Available university services that support achievement in the course:

Accepted, but not adequate.

24. Required equipment:

Data shows and laptops for lectures

25. References:

A- Required book (s), assigned reading and audio-visuals:

1. Cell & Molecular Biology : Concepts & Experiments 5th Ed(2008).
By:Gerald Karp, John Wily & Sons,.

B- Recommended books, materials, and media:

1.Lodish *et al* (2005)Molecular Cell Biology. 5th ed. Scientific American Books.

2.Alberts *et al* (1991). Molecular Biology of the Cell. 2nd ed. Garland Publishing, New York.

26. Additional information:

Name of Course Coordinator: الدكتور زياد الشريدة Signature: ---------- Date: 12/ 01/ 2016

Head of curriculum committee/Department: الاستاذة الدكتورة سوسن العوران Signature: ----------

Head of Department: الدكتورة هناء العبوس Signature: ----------

Head of curriculum committee/Faculty: الاستاذة الدكتورة أمل العابودي Signature: ----------

Dean: الاستاذ الدكتور صالح محمود Signature: ----------

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Head of Department
Assistant Dean for Quality Assurance
Course File