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

4. Prerequisites/corequisites
   Genera Biology 2 (0304102)

5. Program title
   Biological Sciences

6. Program code
   0304231

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

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. Cognitive / 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:

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<th>Topic</th>
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<td>1:</td>
<td>Chapter 1: A Preview of the Cell</td>
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<td>Cell Theory</td>
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<td>Emergence of Modern Cell Biology</td>
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<td>The light Microscopes, Transmission Electron Microscopy</td>
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<td>Scanning Electron Microscopy</td>
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<td>4:</td>
<td>Chapter 4: Cells and Organelles: Overview.</td>
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<td>Eukaryotes vs prokaryotes.</td>
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<td>5-6:</td>
<td>Chapter 7: Membranes: Their Structure, Function &amp; Chemistry</td>
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<td></td>
<td>Models of Membrane Structure</td>
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<td></td>
<td>Membrane Lipids: The Fluid Part of the Model</td>
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<td>Membrane Proteins: The Mosaic Part of the Model</td>
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<td>7-9:</td>
<td>Chapter 8: Transport Across Membranes: Overcoming the Permeability Parier</td>
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<td>Cells &amp; Transport Processes</td>
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<td>Simple Diffusion: Unassisted Movement Down the Gradient</td>
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<td>Facilitated Diffusion: Protein-Mediated Movement Down the Gradient</td>
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<td>Active Transport: Protein-Mediated Movement Up the Gradient</td>
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<td>Examples of Active Transport</td>
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<td>10:</td>
<td>First Hour Exam At week # 6</td>
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<td>11-16:</td>
<td>Chapter 12: The Endomembrane Peroxisomes</td>
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<td>The Endoplasmic Reticulum. The golgi Complex. Roles of ER &amp; Golgi Complex in Protein Glycosylation &amp; Trafficking.</td>
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<td>Exocytosis and Endocytosis: Transporting Material Across the Plasma Membrane.</td>
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<td>Coated vesicles in Cellular Transport Processes</td>
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<td>17-18:</td>
<td>Chapter 14: Signal Transduction Mechanisms II: Messengers and Receptors.</td>
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<td>Chemical Signals and Cellular Receptors. G Protein-Linked Receptors.</td>
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<td></td>
<td>Protein Kinase-Associated Receptors. Growth Factors as Messengers</td>
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19-21: Chapter 15: Cytoskeletal System
   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
   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

   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, Chromosomes, and the Nucleus
   DNA Packaging. The Nucleus

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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 resources

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 hour 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:

   By: Gerald Karp, John Wily & Sons,.

B- Recommended books, materials, and media:


26. Additional information:

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

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

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

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

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

Copy to:
Head of Department
Assistant Dean for Quality Assurance
Course File