



**The University of Jordan**

**Accreditation & Quality Assurance Center**

**COURSE Syllabus**

<b>1</b>	Course title	<b>Cell Biology</b>
<b>2</b>	Course number	5501232
<b>3</b>	<b>Credit hours (theory, practical)</b>	<b>3</b>
	<b>Contact hours (theory, practical)</b>	<b>3</b>
<b>4</b>	Prerequisites/corequisites	General Biology (2) 5501102
<b>5</b>	Program title	<b>Bachelor in Marine Biology</b>
<b>6</b>	Program code	<b>5501</b>
<b>7</b>	Awarding institution	<b>The University of Jordan-Aqaba</b>
<b>8</b>	Faculty	<b>Marine Sciences</b>
<b>9</b>	Department	<b>Marine Biology</b>
<b>10</b>	Level of course	<b>First year</b>
<b>11</b>	Year of study and semester (s)	<b>First semester 2015/2016</b>
<b>12</b>	Final Qualification	<b>BSc.</b>
<b>13</b>	Other department (s) involved in teaching the course	<b>non</b>
<b>14</b>	Language of Instruction	<b>English</b>
<b>15</b>	Date of production/revision	<b>14/2/2011</b>

**16. Course Coordinator:**

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

\*\* Instructor : Majduleen Sbaihat.

\*\* E-mail: [m.sbaihat@ju.edu.jo](mailto:m.sbaihat@ju.edu.jo)

\*\* Office hours: ( Mon., Wed.) → 09:30 -11:00 AM

\*\* Office #: Faculty of Marine Sciences – Room # 1

\*\* Phone Numbers : 032090450 Ext. 35079

**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.*

This course deals with the cell as a unit of structure and function 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 peroxisoms ultrastructure and function. 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 ultrastructure and functions of cytoskeleton. Other topics covered by the course include cellular movement: motility and contractility and cell-to cell signaling as well as the cellular aspects of cancer, aging and death.

**19. Course aims and outcomes:** .1

**A- Aims:**

**Upon successful completion of this course, students will be able to:**

- 1- Define the cell as a unit of structure and function of all living organisms. It includes: Cell theory, Modern Cell Biology.
- 2- Identify the chemistry of the cell, include: characteristics of carbon, characteristics of water, selectively permeable membranes, synthesis by polymerization of small molecules and self assembly.
- 3- Identify plant and animal cell organelles and describe their structure and functions, and study the intracellular compartments: endoplasmic reticulum, golgi complex, lysosomes and peroxisoms ultrastructure and function. Energy transformers: mitochondria and chloroplasts. Also 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 ultrastructure and functions of cytoskeleton.
- 4- Describe the agents that invade cells: Viruses, Viroids, and Prions.
- 5- Identify the Membranes: Their Structure, Function, and Chemistry. Also identify cellular movement: motility and contractility and cell-to cell signalling.
- 6- Identify Important Technique for Lipid and Protein Analysis. For examples: Thin-Layer Chromatography (TLC) , Fluorescence Recovery After Photobleaching (FRAP), Freeze-Fracture Analysis of Membranes, SDS-Polyacrylamide Gel Electrophoresis.

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

**Learning outcomes:****• Knowledge and understanding**

At the end of this module, students will be able to:

- 1- Define the cell as a unit of structure and function of all living organisms. It includes: Cell theory, Modern Cell Biology.
- 2- Identify the chemistry of the cell, include: characteristics of carbon, characteristics of water, selectively permeable membranes, synthesis by polymerization of small molecules and self assembly.
- 3- Identify plant and animal cell organelles and describe their structure and functions.
- 4- Describe the agents that invade cells: Viruses, Viroids, and Prions.
- 5- Identify the Membranes: Their Structure, Function, and Chemistry. Also identify cellular movement: motility and contractility and cell-to cell signalling.
- 6- Identify Important Technique for Lipid and Protein Analysis. For examples: Thin-Layer Chromatography (TLC) , Fluorescence Recovery After Photobleaching (FRAP), Freeze-Fracture Analysis of Membranes, SDS-Polyacrylamide Gel Electrophoresis.
- 7- Define the plant and animal tissues, also distinguish the different type of them.

**• Cognitive skills (thinking and analysis).**

- The thinking skills will be developed by encouraging students to conclude answers to different questions that the instructor intends to use during the presentation of the scientific material.
- The instructor intends to stimulate the student's analytical thinking side via connections with general aspects in daily life or through questions, net searching, and home works.



<b>12</b>	9 Dec. –14 Dec.	The Endomembrane System and peroxisomes
<b>14</b>	16 Dec. – 21 Dec.	Signal Transduction Mechanisms II: Messengers and Receptors
<b>15</b>	23 Dec. – 28 Dec.	Cytoskeletal Systems
<b>16</b>	30 Dec. – 6 Jan.	Cellular Movement: Motility and Contractility
<b>FINAL EXAM: 9/1/2015 – 18/1/2015</b>		

### 21. Teaching Methods and Assignments:

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

- Power point lectures, questions and discussions, videos, home works.
- Assignments such as preparing of reports on topics related to the subject.
- Students are requested to present a power point presentation on a subject of his/her choice within the framework of the study material.
- Quizzes and evaluation of students.

### 22. Evaluation Methods and Course Requirements:

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

Quizzes  
Home work / Assignments.  
Attendance and Participation in the class  
Mid Exam  
Final Exam

### 23. Course Policies:

#### A- Attendance policies:

#### A- Attendance policies:

1- I strongly recommend you attend every lecture. Missing any lecture will put you at a distinct disadvantage when test taken.

2- Any student with four or more unexcused absences from lecture can be legally dropped from the course.

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

The only valid excuses for missing an exam are: death in the family, illness, or accident. In this case you must provide evidence of some kind and you must report me within 3 days.

#### C- Health and safety procedures:

Students who miss the exam due to illness or other excuse must notify me within the first week after the exam, so make up arrangements can be Made.

#### D- Honesty policy regarding cheating, plagiarism, misbehavior:

1. Students are not expected to talk in class while the instructor is lecturing
2. After two warning of talking or any other classroom disruption, the Student will be automatically removed from the class.
3. Any act of cheating, or academic misconduct is subject to penalties.
4. The minimum penalty for any students caught cheating will receive a zero on that test.

#### E- Grading policy:

Type	Grading
Quizzes	10%
<b>Home work / Assignments.</b>	<b>5%</b>
Attendance/participation	5%
Midterm exam:	30%
Final Exam:	50%
Total	100%

**Exams:** The examinations will consist of any combination of Multiple choice, short answer, fill in the blank, matching, identification of figures or essay questions.

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

Library sources are available, internet, laboratory facilities.

**24. Required equipment:**

1. Lab top
2. Data show
3. white board

**25. References:**

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

**Textbook:** We will use the text “*Becker’s World of the Cell*” by the authors: Hardin, Bertoni and Kleinsmith. *8<sup>th</sup> Edition*. Pearson Publishing, ©2012

**Supplementary reading:** [www.thecellplace.com](http://www.thecellplace.com)

B- Recommended books, materials, and media:

**26. Additional information:**

Name of Course Coordinator: **Ins. Majduleen Sbaihat** Signature: ----- Date: **07/9/2015**

Head of curriculum committee/Department: ----- Signature: -----

Head of Department: ----- Signature: -----

Head of curriculum committee/Faculty: ----- Signature: -----

Dean: ----- -Signature: -----

Copy to:

Head of Department  
Assistant Dean for Quality Assurance  
Course File