Course E-Syllabus

1	**Course title**	Cell and Molecular Biology
2	**Course number**	0304231
3	**Credit hours**	2
	Contact hours (theory, practical)	(2,0)
4	**Prerequisites/corequisites**	-
5	**Program title**	B.Sc. in Biology
6	**Program code**	05
7	**Awarding institution**	The University of Jordan
8	**School**	Science
9	**Department**	Biological Sciences
10	**Level of course**	2nd year
11	**Year of study and semester (s)**	2022/2023 Summer
12	**Final Qualification**	School Requirement
13	**Other department (s) involved in teaching the course**	N/A
14	**Language of Instruction**	English
15	**Teaching methodology**	☐Blended ☒Online
16	**Electronic platform(s)**	☒Moodle ☒Microsoft Teams ☐Skype ☐Zoom ☐Others……
17	**Date of production/revision**	27 June. 2023

18 Course Coordinator:

Name: **Dr. Amer Imraish**
Office number: Biological Sciences Building, Room # 301
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19 Other instructors:

20 Course Description:

As stated in the approved study plan.
This is a four-credit hour course mandatory for first-year students of medicine and dentistry. The course is designed to introduce students to the basics of cellular and molecular biology. The basics include the study of cell structure and the function of cell components, the chemical structure of the genetic material, molecular processes such as replication, transcription, and translation, in addition to the study of basic molecular biology tools and techniques.

21 Course aims and outcomes:

A- Aims:

The overall objective is to: 1) cell organization and function of the different components and abnormalities, 2) learn the basic processes of the central dogma of molecular biology including DNA replication, RNA transcription, and protein translation, and 3) become familiar with basic molecular biology techniques involved in recombinant DNA technology.

B- Students Learning Outcomes (SLOs):
Upon successful completion of this course, students will be able to:

1. Learn the overall cellular and molecular components of cells.
2. Understand the structure and role of the endomembrane system in protein synthesis and sorting.
3. Understand the structure of the nucleus and the nuclear membrane.
4. Understand the structure and organization of cytoskeleton and their role in cell activities.
5. Recall the different components of the extracellular matrix.
6. Recall the different modes of cell signaling with emphasis on cell surface receptors and their intracellular signaling molecules and their cellular effects.

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SLOs / SLOs of the course	SLO (1)	SLO (2)	SLO (3)	SLO (4)	SLO (5)	SLO (6)
1	X					
2	X					
3	X					
4	X					
5	X					
6	X					

22. Topic Outline and Schedule:

Week	Lecture	Topic	Teaching Methods*/ platform*	Evaluation Methods**	References
1-2	1-2	Introduction to cell biology: Discovery of cells. Basic properties of cells. Two fundamentally different classes of cells	*	**	Ch.1 (pp. 1-18)
	3--6	Cellular membrane: The chemical composition of membranes. The movement of substances across cell membranes	*	**	Ch. 8 (pp. 311-348)

2-3	7	Mitochondria	*	**	Ch. 9 (pp.368-372) +395
	8	Peroxisomes	*	**	Ch. 9 (pp.392-394)
	9-10	Cellular organelles and membrane trafficking	*	**	Ch. 12 (pp.463-495)
3-4	11-12	Lysosome, endocytosis, endocytosis, and lysosomal storage diseases	*	**	Ch.12 (pp.496-510)
	13	Structure and function of the cell nucleus	*	**	Ch. 6 (pp.225-243)
	14-16	The cytoskeleton: Microtubules. MTOC.	*	**	Ch. 13 (pp.517-540)
5-6	17	The cytoskeleton: Intermediate filaments	*	**	Ch. 13 (pp.541-543)
	18-20	The cytoskeleton: Microfilaments. Myosin. Muscle contractility and cellular motility	*	**	Ch. 13 (pp.544-563)
	21-23	The extracellular matrix and cell interactions	*	**	Ch. 11 (pp.426-452)
6-7	24-26	Cell signaling pathways: GPCR and RTK	*	**	Ch. 15 (pp.624-665)
	27-28	Cell division: The cell cycle	*	**	Ch. 14 (pp.578-588)

* Teaching methods include: Synchronous lecturing/meeting; Asynchronous lecturing/meeting
* Platform is Microsoft Teams; unless otherwise indicated by your instructor
** Evaluation methods include: Midterm exam and Final exam

23 Evaluation Methods:

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

Evaluation Activity	Mark	Topic(s)	Period (Week)	Platform
Midterm Exam	30	TBD	TBD	TBA
Quiz Exam	20	TBD		TBA
Final Exam	50	TBD	TBD	TBA

24 Course Requirements (e.g: students should have a computer, internet connection, webcam, account on a specific software/platform…etc):

Student are **required** to have access to the following:

- A computer (with webcam & microphone)
- Active and dependable internet connection
- E-Learning website (not the mobile application) works smoothly on their computer.
- Make sure to install the application (platform) which will be used by your instructor to conduct the live meetings (Microsoft Teams).

25 Course Policies:

A- Attendance policies:
Absence from lectures should not exceed 15%. Students who exceed the 15% limit without a medical or emergency excuse acceptable to and approved by the Dean of the relevant college/faculty shall not be allowed to take the final examination and shall receive a mark of zero for the course.

B- Absences from exams and submitting assignments on time:
You should contact **your instructor** as soon as possible if you miss an exam. All such cases will be dealt with according to the rules outlined in your student handbook.

C- Health and safety procedures:
N/A

D- Honesty policy regarding cheating, plagiarism, misbehavior:
All violations pertaining to cheating, plagiarism, misbehavior will be dealt with in accordance to the rules outlined in your student handbook.

E- Grading policy:
All exams are made up of MCQ' and will be graded automatically.

F- Available university services that support achievement in the course:
- Microsoft Teams → live meeting → https://teams.microsoft.com
- University of Jordan's E-Learning online educational portal → http://www.elearning.ju.edu.jo
- Optional mobile application to access E-Learning platform (Moodle)

26 References:

A- Required book(s), assigned reading and audio-visuals:
1. **Karp's Cell Biology. 8th edition (Global Edition). By: Iwasa and Marshal, John Wiley & Sons, 2016.**
2. **The Cell: A Molecular Approach, Geoffrey M. Cooper and Robert E. Hausmann, 7th edition, Sinauer Associates, 2018**.
3. **Recorded lectures on YouTube**

27 Additional information:

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Name of Course Coordinator: **Dr. Amer Imraish** Signature: Date: 27.6.2023

Head of Curriculum Committee/Department: ---------- Signature: ----------

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

Head of Curriculum Committee/Faculty: ---------- Signature: ----------

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