

Course Syllabus

1	Course title	Molecular Biology	
2	Course number	0344716	
3	Credit hours	3	
	Contact hours (theory, practical)	3	
4	Prerequisites/corequisites	None	
5	Program title	Master in Biological Sciences	
6	Program code		
7	Awarding institution	The University of Jordan	
8	School	School of Graduate Studies	
9	Department	Biological Sciences	
10	Course level	First year	
11	Year of study and semester (s)	2023/2024 First semester	
12	Other department (s) involved in teaching the course	None	
13	Main teaching language	English	
14	Delivery method	<input type="checkbox"/> Face to face learning <input type="checkbox"/> Blended <input type="checkbox"/> Fully online	
15	Online platforms(s)	<input type="checkbox"/> Moodle <input type="checkbox"/> Microsoft Teams <input type="checkbox"/> Skype <input type="checkbox"/> Zoom <input type="checkbox"/> Others.....	
16	Issuing/Revision Date	Oct.2023	

17 Course Coordinator:

Name: Dr. Khaldoun Al-Hadid

Contact hours: Sun 9:30- 10:20, Mon 10:15- 11:15

Office number: 208

Phone number: 22203

Email: kalhadid@ju.edu.jo

**18 Other instructors:**

Name:

Office number:

Phone number:

Email:

Contact hours:

Name:

Office number:

Phone number:

Email:

Contact hours:

19 Course Description:

Introduction to chemistry and conformation of DNA, homologous recombinations, site specific recombination and transposition, gene families, recombinant DNA technology, DNA-Protein interaction, regulation of gene expression, regulation of cell cycle.

Oncogenes and tumor suppressor genes.

20 Course aims and outcomes:

A- Aims:

The aim of this course is to increase the deep knowledge of molecular biology to the students particularly, *In vivo* mechanisms of prokaryotic and eukaryotic replication, transcription, translation, and gene cloning methods.

B- Students Learning Outcomes (SLOs):

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

1. Describe and understand the structure of DNA molecular and its dynamics.
2. Understand and apply the knowledge of gene cloning and its applications.
3. Describe and understand the different processes of DNA replication, transcription, and translation.
4. Understand and analyse the differences between prokaryotic and eukaryotic mechanisms of molecular biology *In vivo*.
5. Gaining the skills of presentations and discussion scientific data and experiments

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

21. Topic Outline and Schedule:

Week	Lecture	Topic	Student Learning Outcome	Learning Methods (Face to Face/Blended/ Fully Online)	Platform	Synchronous / Asynchronous Lecturing	Evaluation Methods	Resources
1	1.1	Introduction		Face to face				
	1.2	The big picture		Face to face				
2	2.1	Chapter 1: Introduction to Molecular Biology		Face to face				Principles of Molecular Biology 1-22
	2.2	Chapter 1: Introduction to Molecular Biology + Chapter 2: Protein Structure and Function (Self-reading)		Face to face				Principles of Molecular Biology 24-77
3	3.1	Chapter 3: Nucleic Acid Structure		Face to face				Principles of Molecular Biology 81-108
	3.2	Chapter 3: Nucleic Acid Structure		Face to face				
4	4.1	Chapter 3: Nucleic Acid Structure		Face to face				
	4.2	Chapter 3: Nucleic Acid Structure		Face to face				

5	5.1	Chapter 4: Molecular biology Technology		Face to face				Principles of Molecular Biology 113-147
	5.2	Chapter 4: Molecular biology Technology		Face to face				
6	6.1	Chapter 5: Chromosomes		Face to face				Principles of Molecular Biology 151-180
	6.2	Chapter 5: Chromosomes		Face to face				
7	7.1	Chapter 5: Chromosomes		Face to face				
	7.2	Chapter 8: DNA Replication		Face to face				Principles of Molecular Biology 265-311
8	8.1	Chapter 8: DNA Replication		Face to face				
	8.2	Chapter 8: DNA Replication		Face to face				
9	9.1	Chapter 9: DNA Damage and Repair		Face to face				Principles of Molecular Biology 318-347
	9.2	Exam		Face to face				

10	10.1	Chapter 9: DNA Damage and Repair		Face to face				
	10.2	Chapter 9: DNA Damage and Repair		Face to face				
11	11.1	Chapter 12: Bacterial Transcriptio n and Its Regulation		Face to face				Principle s of Molecular Biology 407-458
	11.2	Chapter 12: Bacterial Transcriptio n and Its Regulation		Face to face				
12	12.1	Chapter 13: Eukaryotic Transcriptio n		Face to face				Principles of Molecular Biology 467-541
	12.2	Christmas Holiday		Face to face				
13	13.1	Chapter 13: Eukaryotic Transcriptio n		Face to face				
	13.2	Chapter 13: Eukaryotic Transcriptio n		Face to face				
14	14.1	New Year Holiday		Face to face				
	14.2	Chapter 14: RNA Polymerase II:		Face to face				Principles of Molecular Biology

		Cotranscriptional and Posttranscriptional Processes						552-593
15	15.1	Chapter 14: RNA Polymerase II: Cotranscriptional and Posttranscriptional Processes		Face to face				
	15.2	Chapter 16: Protein Synthesis		Face to face				Principles of Molecular Biology 624-691

22 Evaluation Methods:

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

Evaluation Activity	Mark	Topic(s)	SLOs	Period (Week)	Platform
Written Exams	70				
Presentations	15				
Report	15				

23 Course Requirements



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

None

24 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 talk to 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:

Evaluation Activity	Mark	Period (Week)
Presentation	15	
Report	15	
Midterm Exam	30	Wednesday, Dec.6.2023
Final Exam	40	To be announced

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

-Library

-Free online articles

25 References:

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

Principles of Molecular Biology. Burton E. Tropp. Jones & Bartlett Learning, 2014.

B- Recommended books, materials, and media:

Scientific articles

26 Additional information:

None

Name of Course Coordinator: -----Signature: ----- Date: ----- -----
Head of Curriculum Committee/Department: ----- Signature: ----- ---
Head of Department: ----- Signature: ----- -
Head of Curriculum Committee/Faculty: ----- Signature: ----- -
Dean: ----- Signature: -----