



Jordan University of Science and Technology
Faculty of Science & Arts
Biotechnology & Genetic Engineering Department

BT492B Selected Topics In Biotechnology (B) - JNQF Level: 7

Second Semester 2023-2024

Course Catalog

2 Credit Hours. Discover the dynamic world of epigenetics in this engaging undergraduate course. Uncover how gene expression is controlled beyond the DNA sequence, exploring mechanisms like DNA methylation and histone modifications. Investigate how these epigenetic changes influence development, disease, and evolution. From lab techniques to real-world applications in medicine and environmental studies, delve into the forefront of genetic research. Join us to unravel the hidden layers of genetic regulation and their impact on life

Teaching Method: On Campus

Text Book

Title	Epigenetic Gene Expression and Regulation. (2015)
Author(s)	Huang, Litt and Blakey
Edition	1st Edition
Short Name	1
Other Information	

Course References

Short name	Book name	Author(s)	Edition	Other Information
2	An Overview of the Molecular Basis of Epigenetics (2013)	J. David Sweatt, Eric J. Nestler, Michael J. Meaney, Schahram Akbarian	1st Edition	https://doi.org/10.1016/B978-0-12-391494-1.00001-X
Ref#3	Recent published articles in the field of epigenetics	Different authors	1st Edition	

Instructor

Name	Dr. OSAMAH BATIHA
Office Location	Ph1L1, Ext 23466

Office Hours	
Email	oybatiha@just.edu.jo

Class Schedule & Room
Section 1: Lecture Time: Mon, Wed : 10:00 - 11:00 Room: M1305

Tentative List of Topics Covered		
Weeks	Topic	References
Week 1	Introduction to the course Review of classical genetics	From 1
Week 2	Introduction to epigenetics	From 1
Weeks 3, 4	Assessment of Epigenetic States	From 1 , From 2
Week 5	Non-coding RNAs in epigenetics epigenetics	From 1 , From 2
Week 6	X chromosome inactivation	From 1 , From 2
Week 7	Genomic imprinting in mammals	From 1 , From 2
Week 8	Potential Epigenetic Consequences with Assisted Reproduction	From 1 , From 2
Week 9	Epigenetic reprogramming related to cloning	From 1 , From 2
Week 10	Epigenetic responses to environmental stimuli	From 1 , From 2
Week 11	Epigenetic changes associated with aging	From 1
Weeks 12, 13, 14, 15, 16	Selected paper discussion	From Ref#3

Mapping of Course Outcomes to Program Outcomes and NQF Outcomes	Course Outcome Weight (Out of 100%)	Assessment method
Understand the Principles of Epigenetics [1SLO3] [1L7K1]	15%	
Explore the mechanisms of DNA methylation, histone modifications, and non-coding RNAs in gene expression control. [1SLO3] [1L7K1]	30%	
Evaluate the role of epigenetics in certain biological phenomena such as: X-chromosome inactivation and gene imprinting [1SLO3] [1L7S3]	40%	
Develop critical thinking and problem-solving skills through the analysis of case studies and experimental data. [1SLO4] [1L7C3]	15%	

Relationship to Program Student Outcomes (Out of 100%)					
SLO1	SLO2	SLO3	SLO4	SLO5	SLO6
		85	15		

Relationship to NQF Outcomes (Out of 100%)		
L7K1	L7S3	L7C3
45	40	15

Evaluation	
Assessment Tool	Weight
First exam	30%
Second Exam	30%
Final Exam	40%

Policy	
Attendance	Class attendance is mandatory. Absences in excess of 20% of the total lecture hours will result in your being dropped from the course with a failing grade.
Makeup Exam	Make-up exam appeals should be filed within two days of the missed exam.
Cell phones	Cell phones are prohibited during examinations and must be turned off during the lecture. No incoming or outgoing calls or text messages are allowed.
Unethical conduct	Unethical conduct, including cheating during examinations, will result in punishment by the university administration as per cheating rules and regulations.

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