



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

BT344 Molecular Genetics Laboratory - JNQF Level: 7

First Semester 2023-2024

Course Catalog

1 Credit Hours. This laboratory course is designed to provide hands-on experience in the field of molecular genetics with a specific focus on the model organism, *Drosophila melanogaster*. Students will engage in a series of experiments and techniques commonly used in molecular genetics research to deepen their understanding of fundamental genetic principles and methodologies. Moreover, this Genetics Laboratory course introduces many of the common techniques used in genetic analyses, with an emphasis on modern molecular biology techniques. Nucleic acid isolation, PCR amplifications, and gel electrophoresis.

Teaching Method: Blended

Text Book

Title	Slides and Handouts
Author(s)	No
Edition	14th Edition
Short Name	1
Other Information	No

Instructor

Name	Miss Adan Alnaamneh
Office Location	-
Office Hours	Sun : 08:00 - 08:30 Sun : 14:30 - 16:30 Mon : 08:00 - 08:30 Mon : 14:30 - 16:00 Tue : 08:00 - 08:30 Wed : 08:00 - 08:30 Wed : 08:30 - 10:30 Wed : 10:30 - 12:30 Thu : 12:30 - 14:30
Email	ahalnaamneh2@just.edu.jo

Class Schedule & Room

Section 1:

Lecture Time: Sun : 11:30 - 13:30

Room: LAB 8 (PH2 L0)

Section 6:

Lecture Time: Thu : 10:30 - 12:30

Room: LAB 8 (PH2 L0)

Section 7:

Lecture Time: Sun : 08:30 - 10:30

Room: LAB 8

Section 12:

Lecture Time: Tue : 10:30 - 12:30

Room: LAB 8 (PH2 L0)

Section 13:

Lecture Time: Thu : 10:30 - 12:30

Room: LAB 7 (PH2 L0)

Section 14:

Lecture Time: Sun : 11:30 - 13:30

Room: LAB 7 (PH2 L0)

Prerequisites

Line Number	Course Name	Prerequisite Type
963413	BT341 Molecular Genetics	Pre./Con.

Tentative List of Topics Covered

Weeks	Topic	References
Week 1	Introduction: lab rules and bio-safety	From 1
Week 2	Mitosis in onion root tips	From 1
Week 3	Fruit fly handling	From 1
Week 4	Population genetics	From 1
Week 5	Chi square analysis	
Week 6	Polytene chromosome	From 1
Week 7	Mutations	From 1
Week 8	DNA Isolation from Drosophila	From 1
Week 9	Gel Electrophoresis & DNA analysis	From 1
Week 10	Polymerase Chain Reaction	From 1

Mapping of Course Outcomes to Program Outcomes and NQF Outcomes	Course Outcome Weight (Out of 100%)	Assessment method
understand of the basis of Mendelian genetics [1SLO1] [1L7K1]	20%	Practical, Final exam, MIDTERM, Quizes
use Drosophila flies to do genetic tests [1SLO2] [1L7S1]	20%	Practical, Final exam, MIDTERM, Quizes
Apply an extensive comprehension of various fundamental molecular biology experiments, to design experiments effectively within the molecular biology domain [1SLO1, 1SLO2] [1L7S3]	15%	Practical, Final exam, MIDTERM, Quizes
Evaluate the foundational principles and ethical considerations underlying genetic manipulation techniques employed to create transformed organisms, discerning their scientific significance and potential societal impacts. [1SLO2, 1SLO3] [1L7S3]	25%	Practical, Final exam, MIDTERM, Quizes
Analyze the interplay between population genetics and mutations, discerning their dynamic roles in shaping genetic diversity and evolutionary trajectories within populations. [1SLO1] [1L7S2]	20%	Practical, Final exam, MIDTERM, Quizes

Relationship to Program Student Outcomes (Out of 100%)					
SLO1	SLO2	SLO3	SLO4	SLO5	SLO6
47.5	40	12.5			

Relationship to NQF Outcomes (Out of 100%)			
L7K1	L7S1	L7S2	L7S3
20	20	20	40

Evaluation	
Assessment Tool	Weight
Practical	10%
Final exam	50%
MIDTERM	30%
Quizes	10%