



Jordan University of Science and Technology
Faculty of Science & Arts
Applied Biological Sciences Department

BIO344 Molecular Genetic (Lab)

First Semester 2017-2018

Course Catalog

1 Credit Hours. Genetics laboratory (B344) is a practical guide for the basic genetics course. The experiments have been carefully chosen to suit the needs of students who are taking a basic genetics course. The outline indicates the scope of the work. Studying cell division will be introduced as a preparatory section preceding the basic Mendelian genetics. The laws of Mendelian inheritance will be studied in *Drosophila melanogaster*; the common fruit fly that Morgan has used in his studies. The Chi-square test will be used to determine whether experimentally obtained data continues a good fit to an expected ratio or value. The students will then proceed to carry out several crossing experiments using the fruit fly, *Drosophila melanogaster*. Crossing experiments are followed by preparing and studying the giant chromosome from the salivary gland of *Drosophila* larvae. Human gene frequency exercise will be introduced to study easily observed characteristics that appear to be controlled by single genes and multiple genes. Mutation experiments are designed so students can get fast convincing results using different bacterial strains. One of the methods of DNA extraction will be used to isolate the DNA from bacterial cells. This experiment will acquaint the students with the skills of isolating DNA and enables the students to study the chemical and physical properties of DNA during the last session. The laboratory activities provide an opportunity to make first-hand observations, learn data collection techniques, sharpen one's skill in analysis and reasoning, and practice clear and effective communication. A short introduction to the laboratory will generally be given at the beginning of each lab period

Text Book

Title	lecture notes, handouts and assignments
Author(s)	Ayesha Kofahi and Salsabeel Mohammad
Edition	1st Edition
Short Name	1
Other Information	

Course References

Instructor	
Name	Dr. OSAMAH BATIHA
Office Location	Ph1L1, Ext 23466

Office Hours	Sun : 09:00 - 10:00 Mon : 11:00 - 12:30 Tue : 11:30 - 13:15 Wed : 09:30 - 11:30
Email	oybatih@just.edu.jo

Class Schedule & Room
Section 1: Lecture Time: Sun : 14:30 - 17:30 Room: LAB 8 (PH2 L0)

Tentative List of Topics Covered		
Weeks	Topic	References
Week 1	Introduction	From 1
Week 2	Cell division	From 1
Week 3	Meeting the fruit fly and observation of Drosophila mutants	From 1
Week 4	Monohybrid & Dihybrid cross and chi-square test	From 1
Week 5	Polytene chromosome in Drosophila	From 1
Week 6	Fly transformation	From 1
Week 7	DNA extraction and gel electrophoresis	From 1
Week 8	Midterm Exam	
Week 9	Polymerase Chain Reaction	From 1
Week 10	Population genetics	From 1
Week 11	Mutations	
Week 12	Final exam	

Mapping of Course Objectives to Program Student Outcomes¹	Assessment method
Comprehensive understanding of the basis of Mendelian genetics [1A]	
The ability to handle and culture flies, and learn how to do crosses [1B]	
Comprehensive understanding of the basic molecular biology experiments and the ability to run these experiments [1A, 1B]	
Understanding the basis of genetic transformation and obtain the knowledge required to design a virtual lab experiment [1B, 1C]	
Comprehensive understanding of the basis of population genetics and mutations [1A]	
The ability to read and write a scientific report [1D]	

Relationship to Program Student Outcomes (Out of 100%)					
A	B	C	D	E	F
45	38	12	5		

Policy	
class attendance	Your 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
Make-up exam	Make-up exam appeals should be filed within one week of the missed exam
Cell phones	Cell phones are completely prohibited during examinations according to the university regulations i.e. you are not allowed to bring your phone into the exam hall
Cheating	Unethical conduct, including cheating during examinations, will result in punishment by the university administration

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