



**Philadelphia University**  
**Faculty of Science**  
**Department of Biotechnology & Genetic Engineering**  
**First semester, 2014/2015**

**Course Syllabus**

|  |  |
|--|--|
| <b>Course Title: Genetics lab</b>              | <b>Course code: 240232</b>                   |
| <b>Course Level: 2<sup>nd</sup> year</b>       | <b>Course pre- or co-requisite: Genetics</b> |
| <b>Lecture Time: Sec. 1 Thu. 13:10 – 16:00</b> | <b>Credit hours: 1</b>                       |

**Academic Staff**  
**Specifics**

| <b>Name</b>             | <b>Rank</b>     | <b>Office Number and Location</b>        | <b>Office Hours</b>    | <b>E-mail Address</b>                |
|-------------------------|-----------------|--|------------------------|--------------------------------------|
| <b>Esraa Al-haj ali</b> | <b>Lecturer</b> | <b>1016/ Department of Biotechnology</b> | <b>11- 12 am Daily</b> | <b>ealhajali@philadelphia.edu.jo</b> |

**Course module description:**

This module is a major requisite for the students of biotechnology and genetic engineering and it is presented in lectures. Its contents focus on basic genetics involved in studying *Drosophila*, monohybrid and dihybrid experiment, chi-square test, DNA extraction and mutation.

**Course module objectives:**

1. Learning how to deal with *Drosophila* in laboratory
2. Solving chi-square problems
3. Studying the isolation of DNA and measuring its concentration
4. Identification of Ames test

## Course/ module components:

Lab Sheets will be provided during course

## Teaching methods:

Lectures, experiments, Result discussion, Reports, Tutorials, problemsolving, debate, etc.

## Learning outcomes:

- Knowledge and understanding

The students should be able to know the basic principles of genetics crosses and DNA extraction techniques.

- Cognitive skills (thinking and analysis).

The students will learn the ability to correlate between different experiments and data to identify genetics laws.

- Communication skills (personal and academic).

Raising questions and discussion of results with supervisor, brain storming and group work.

- Practical and subject specific skills (Transferable Skills).

- Monohybrid and dihybrid crosses
- Genetics of *Drosophila*
- DNA extraction
- Ames test

## Assessment instruments

- Short reports and/ or presentations, and/ or Short research projects
- Quizzes.
- Home works
- Final examination: 40 marks

| <u>Allocation of Marks</u>                                |             |
|---|-------------|
| <b>Assessment Instruments</b>                             | <b>Mark</b> |
| Midterm examination                                       | <b>30 %</b> |
| Final examination: 40 marks                               | <b>40%</b>  |
| Reports, research projects, Quizzes, Home works, Projects | <b>30 %</b> |
| Total   | <b>100%</b> |

## **Documentation and academic honesty**

- Documentation style (with illustrative examples)
- Protection by copyright
- Avoiding plagiarism.

## **Course/module academic calendar**

| <b>week</b> | <b>Basic and support material to be covered</b> |
|-------------|---|
| <b>(1)</b>  | <b>Introduction to genetics laboratory</b>      |
| <b>(2)</b>  | <b>Meeting the fruit fly</b>                    |
| <b>(3)</b>  | <b>Observation of <i>Drosophila</i> mutant</b>  |
| <b>(4)</b>  | <b>Monohybrid crosses</b>                       |
| <b>(5)</b>  | <b>Dihybrid cross and chi-square test</b>       |
| <b>(6)</b>  | <b>Midterm Exam</b>                             |
| <b>(7)</b>  | <b>Isolation of DNA</b>                         |
| <b>(8)</b>  | <b>Concentration of DNA</b>                     |
| <b>(9)</b>  | <b>Agarose gel electrophoresis</b>              |
| <b>(10)</b> | <b>Bacterial mutation</b>                       |
| <b>(11)</b> | <b>Ames test</b>                                |
| <b>(12)</b> | <b>Revision</b>                                 |
| <b>(13)</b> | <b>Final Exam</b>                               |

## **Expected workload:**

On average students need to spend 2 hours of study and preparation for each 50-minute lecture/tutorial.

## **Attendance policy:**

Absence from lectures and/or tutorials shall 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. If the excuse is approved by the Dean, the student shall be considered to have withdrawn from the course.