

Selected Topics in Biochemistry; Code: PHB608

A- Basic Information

Programme(s) on which the course is given:	Master degree in Pharmaceutical Science in Biochemistry and Molecular Biology
Department responsible for offering the course:	Department of Biochemistry
Department responsible for teaching the course:	Department of Biochemistry
Academic year:	2021/2022
Course title and code:	Selected Topics in Biochemistry; Code: PHB608
Contact hours (credit hour):	Lecture: 3 (3), Total: 3 (3)
Course Coordinator:	<i>Prof. Dr./ Nadia Hamdy</i>

B- Professional Information

The course aim and intended learning outcomes are based on that mentioned in the programme specifications, with more course-related specific details.

1- Overall Aims of Course

Upon the end of this course,

The students should be able to

- Explain what is meant by single-nucleotide polymorphism (SNP) and can be used as genetic marker
- Describe and understand the applicability of the main techniques of molecular biology.
- Perform the basic techniques of detection and analysis of proteins and nucleic acids
- Integrate the knowledge in fields of molecular biology, preclinical and clinical studies as well as experimental research with other relevant knowledge.
- Understand the role of PCR in advanced molecular biology research.
- They should be alert of the basics of Cell Culture.

2- Intended Learning Outcomes of Course (ILOs)

a- Knowledge and Understanding:

The students should be able to:

a1- Define basic concepts of the main techniques of molecular biology.

a2- Explain the principles of PCR and gel electrophoresis

a3-Know different methods of nucleic acids extraction

a4-Explain techniques for analysis of protein expression such as ELISA and western blotting

a5- State basics of Cell culture and its application.

b- Intellectual Skills:

The students should be able to:

b1- Apply the knowledge acquired in the field of Molecular Diagnostics to make decisions on clinical tests to be applied to particular diagnostic queries.

b2- Evaluate papers dealing with molecular methods or clinical applications and to interpret the correct execution.

b3- Effectively apply internet-based tools and databases involved in various aspects of data processing and biological interpretation.

b4- Good practices and safe practices in the molecular biology laboratories

d- General and Transferable Skills:

The students should be able to:

d1-Search the internet for information.

d2-Work as a member in a team.

d3-Capable of efficient time management

3- Course Contents

Topics	No. of hours	Lecture
Introduction	3	1
Various databases, imp. tools & resources	3	2
Introduction to PCR SNPs	3	3
PCR (Cont.) and Primer design	3	4
Nucleic acids isolation and Electrophoresis	3	5
Protein detection technique I (Western Blotting)	3	6
Protein detection technique II (ELISA)	3	7
Basics of Cell Culture	3	8
Published Paper discussion 1	3	9
Published Paper discussion 2	3	10
Published Paper discussion 3	3	11
Published Paper discussion 4	3	12
Published Paper discussion 5	3	13
Published Paper discussion 6	3	14
Published Paper discussion 7	3	15
Total	45	45

Lecturers:

Prof. Nadia Hamdy+

Dr. Marwa Omar + Associate Prof. Dina Hamada

4- Teaching and Learning Methods

- Lectures (board, data show) F2F and on line using google classroom (Blended mode)

5- Student Assessment Methods

- Final exam to assess knowledge and understanding, intellectual and professional skills
- Oral exam to assess knowledge, intellectual skills and transferable skills.

Assessment Schedule

Assessment 1	Class work	Week 14
Assessment 2	Oral exam	Week 15
Assessment 3	Final written exam	Week 15

Weighting of Assessments

Final-term Examination	80 %
Oral Examination	10 %
Class work	10 %
Total	100 %

6- List of References

Essential books (text books)

- RNA interference and cancer therapy
- Cancer as a metabolic disease
- Metabolism in cancer
- Stem cell biology

7- Facilities Required for Teaching and Learning

- Study halls, Data Show, and Books, F2F and online (Blended)
- Course jC and discussions.
- Argument papers.

Course Coordinator: Prof. Dr./ Nadia Hamdy

Date: 9/2021

Head of Department: Prof. Dr./ Nadia Hamdy

Course name	Selected Topics in Biochemistry
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Course matrix

Course content	a1	a2	a3	a4	a5	b1	b2	b3	b4	d1	d2	d3
Introduction												
Various databases, imp. tools & resources												
Introduction to PCR SNPs												
PCR (Cont.) and Primer design												
Nucleic acids isolation and Electrophoresis												
Protein detection technique I (Western Blotting)												
Protein detection technique II (ELISA)												
Basics of Cell Culture												
7 Published Papers discussion												

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ا.د. نادية حمدي الحفني

Prof. Nadia Hamdy