

Cell Biology; Code: (PB 201C)

A- Basic Information

Programme(s) on which the course is given:	Bachelor of Pharm D Clinical
Department responsible for offering the course:	Department of Biochemistry
Department responsible for teaching the course:	Department of Biochemistry (70% of the course) Department of Microbiology (30% of the course)
Academic year:	Level one -Second Semester
Course title and code:	Cell Biology; Code: (PB 201C)
Credit hours:	Lecture: 1 hr, Practical: 2 hr, Total: 3 hrs/week
Course Coordinator:	Dr/Dina Mostafa

B- Professional Information

1 - Overall Aim of the Course

Upon successful completion of the first part of this course taught by the microbiology department (30% of the course), the students should be able to understand the cell theory, identify the main characteristics of cells, be able to differentiate between prokaryotic and eukaryotic cells and be familiar with the different structures of prokaryotic cells.

Upon successful completion of this course by the biochemistry department (70% of the course), the students should be able to recognize the structure of the plasma membrane and cellular organelles. They should be able to understand the human genome and DNA organization. They would be able to know steps of DNA Replication, Transcription and Translation. Besides, they would be able to explain the cell cycle as well as the transport of biomolecules across membranes.

2 -Competency- Based NARS

Domain 1: Fundamental knowledge

- 1.1. Demonstrate understanding of knowledge of the structure of the cell and its various organelles and their functions; and utilize the proper medical terms, and abbreviations.
- 1.2. Demonstrate understanding of the cellular components underlying mitotic cell division.
- 1.3. Demonstrate understanding that the growth, development, and behavior of organisms are activated through the expression of genetic information in context.
- 1.4. Collect and interpret information from scientific literature and communicate biological concepts and understanding to members of a diverse scientific community as well as to the general public.
- 1.5. Identify and critically analyze changes or losses in cell function influencing patient health.

Domain 2: Professional and ethical practice

- 2.1. Perform responsibilities and authorities in compliance with the legal and professional structure.

- 2.2. Adopt ethics of health care respecting patients' rights and adopt standard lab procedures.
- 2.3. Recognize own personal and professional limitations and accept the conditions of referral to or guidance from other members of the health care team.
- 2.4. Handle and dispose biologicals and chemicals safely and implement different lab procedures for preparation of biological samples.
- 2.5. Recognize the techniques of biochemistry lab and their applications and adopt ethical, legal, and safety guidelines for handling and disposal of different biological samples.

Domain 3: Pharmaceutical care

- 3.1. Apply the principles of cell structure and function and basis of genomics in health and disease states to manage different diseases.
- 3.2. Relate etiology, laboratory diagnosis, and clinical features of diseases.

Domain 4: Personal practice

- 4.1. Demonstrate responsibility for team performance and express time management skills.
- 4.2. Retrieve and critically analyze information and work autonomously and effectively as a team member.
- 4.3. Demonstrate creativity in assigned activities and apply entrepreneurial skills.
- 4.4. Demonstrate effective verbal and non-verbal communication skills.
- 4.5. Demonstrate effective presentation skills using contemporary technologies and media.
- 4.6. Perform self-assessment to enhance professional and personal competencies.
- 4.7. Practice independent learning needed for continuous professional development.

3- Course Contents

Topics	No. of Hours
1-Theoretical Part	
Microbiology and Immunology Department	3
Biochemistry Department	
Cell membrane and organelles	1
Human genome and DNA organization	1
DNA Replication	1
Transcription	1
Translation	1
Basic concepts of transport + Cell cycle	1
Total no of hours	9
2-Practical Part	
Microbiology and Immunology Department	6
Biochemistry Department	
Preparation of Biological samples	2

DNA Extraction	2
RNA Extraction	2
Introduction to Basics of Cell Culture	2
Total no of hours	14

4- Teaching and Learning Methods:

- 4.1. Lectures (Recorded videos)
- 4.2. Practical sessions (Tools: lab glassware, chemical reagents)
- 4.3. Blended learning tools (videos, dry labs, case study, discussions)
- 4.4. All lectures and practical labs will be recorded and posted on Moodle.

5- Student Assessment Methods:

- 5.1. Periodic exam to assess knowledge, intellectual and understanding skills.
- 5.2. Practical exams to assess intellectual, practical and transferable skills.
- 5.3. Final exam to assess understanding, knowledge, intellectual, professional and transferable skills
- 5.4. Oral exam to assess knowledge and intellectual skills.

Assessment Schedule

Assessment 1	Periodic exams	Week 6
Assessment 2	Practical exam	Week 4 (Microbiology) Week 10 (Biochemistry)
Assessment 3	Oral exam	Week 12
Assessment 4	Final written exam	Week 12

Weighting of Assessments

Periodical examination	15%
Final-term Examination	50 %
Oral Examination	10%
Practical Examination	25%
Total	100%

6- List of References

- Course notes: Lecture notes prepared by the instructor.
- Recommended books:
 - Nalini Chandar, Lippincott Illustrated Reviews: cell and molecular biology (Lippincott Illustrated Reviews Series) Second edition, Philadelphia: Wolters Kluwer 2019, ISBN: 978146348500
 - Denise Ferrier; Lippincott Illustrated Reviews: Biochemistry (Lippincott Illustrated Reviews Series) Seventh, North American Edition ISBN-13: 978-1496344496, ISBN-10: 1496344499
 - Gerald Carp. 2010. Cell and Molecular Biology Concepts and Experiments, sixth edition, John Wiley and sons Inc.
 - O'Connor, C. M. & Adams, J. U. Essentials of Cell Biology. 2010. Cambridge, MA: NPG Education.
- ThemedicalBiochemistrypage.org

7- Facilities Required for Teaching and Learning

Modern libraries, audio-visual tools, chemicals, cooperative assistants, glassware and instruments

Course Coordinator: Dr/ Dina Mostafa

Dina Mostafa

Course members: Dr/Dina Mostafa (Biochemistry)
Dr/Amany Kamal (Biochemistry)
Dr/Nooran Elleboudy (Microbiology)

Date: 16 February 2021

Head of Biochemistry Department:
Prof. Dr. Nadia Hamdy

Course Matrix

Course content	1.1	1.2	1.3	1.4	1.5	2.1	2.2	2.3	2.4	2.5	3.1	3.2	4.1	4.2	4.3	4.4	4.5	4.6	4.7
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تم الاعتماد في محضر مجلس قسم الكيمياء الحيوية
جلسة رقم (6) بتاريخ ٢٠٢١/٢/١٦

اد/ نادية حمدي الحفني

Prof. Nadia Hamdy

رئيس قسم الكيمياء الحيوية