



# Course Specifications

## Cell biology

*First year of M.B.B.Ch. Program*

**(1<sup>st</sup> semester)**

# Cell Biology

## Course specifications:

Program (s) on which the course is given: M.B.B.Ch. program

Major Element of programs

Department offering the program: All Departments

Department offering the course: Department of Histology & physiology

Date of specification approval :3\2010

Date of modification: 11\2018

Academic year / Level: First year (1<sup>st</sup> semester)

## A- Basic information

**Title:** cell biology

**Course code:** CBI 101

**Credite hours/ week:** - Lectures: 3 hours - practical: 1 hour

**Note:** This course is given in integration with Histology & physiology

## B-Professional information

### 1-Overall aims

*By the end of the course, students should be able to:*

#### Histology:

- Understand the structure and functions of both the light and electron microscopes.
- Learn how to deal with the light microscope.
- Identify various types of stains.
- Describe the methods of studying cells and tissues.
- Mention and describe the specific characteristic of cell components in relation to the functions of each component.
- Explain the phases of the cell cycle, cell division and types of cell death.
- Describe the structural characteristics of the epithelial tissues and differentiate between different types of epithelium.

- Describe different connective tissue components (cells, fibers and matrix).

### **Physiology:**

The aim of this course is to describe the cellular functions at the organelle and molecular levels

## **2- Intended learning outcomes (ILOs)**

### **A- Knowledge and understanding**

*By the end of the course, students should be able to:*

### **Histology:**

A1- Describe the basic steps in preparing specimens for light microscopy.

A2- Define and describe the histological characteristics of normal cells.

A3- Define and describe the structure and functions of the cytoplasmic components.

A4- Describe the subunits of each nuclear component and their role in its function.

A5- Explain the process of cell division and identify the phases of the cell cycle.

A6- Describe chromosomal structure and karyotyping.

A7- Describe the structural characteristics of the epithelial and connective tissues.

A8- Describe the structural- functional relationship of each tissue type.

### **Physiology :**

A1 - Acquire insight into principles of cell cycle and cell signaling.

A2 –identify the functions of cellular organelles.

### **B-Intellectual skills**

*By the end of the course, students should be able to:*

### **Histology:**

B1- Correlate between histological structure & function of the cell or tissue.

B2- Select appropriate methods to reveal specific microscopic features of cells and tissues.

B3- Diagnose slides different from those seen during the course but of the same organs or tissues previously studied.

### **Physiology:**

B1-Integrate cell biology with other basic and clinical science

### **C- Professional skills**

*By the end of the course, students should be able to:*

### **Histology:**

C1- Name the instruments and techniques used to prepare and study histological specimens.

C2 - Use the microscope efficiently.

C3- Handle the histological glass slides and examine them using the maximum microscopic facilities.

C4- Identify various types of stains & microtechniques.

C5- Identify different cell organelles.

C6- Identify and differentiate between different types of epithelium and connective tissues.

C7-Draw and label the structures they have seen in electron photomicrographs and under light microscope during practical classes.

### **Physiology:**

C1 - Work separately or in a team to research and prepare scientific topics

### **D- General skills**

*By the end of the course, students should be able to:*

### **Histology:**

D1- Appreciate the importance of life long learning and show a strong commitment to it.

D2- Use the sources of biomedical information to remain current with advances in knowledge and practice.

## **3-Course Contents**

### **Histology:**

Topic	No. of credit Hours	Lecture	Tutorial / Practical
1-Method of studying cells and tissues	7	4	3
2- Plasma membrane &its modifications	4	4	—

3- Organelles of eukaryotic cells	4	2	2
4- Cytoplasmic inclusions	3	2	1
6-nucleus,chromosomes & karyotyping	3	2	1
7-Cell cycle & cell death	2	2	–
8-Epithelial Tissues & tissue junctions	6	4	2
9-Connective tissues & tissue matrix	6	4	2
<b>Total</b>	<b>35</b>	<b>24</b>	<b>11</b>

**Physiology:**

<b><u>Weeks</u></b>	<b><u>Topics</u></b>	<b><u>Lectures</u></b>	<b><u>Total</u></b>	<b><u>Weight</u></b>
<b><u>1<sup>st</sup> week</u></b>	Transport of ions and small molecules across cell membranes (simple diffusion)	1	1	8.3
<b><u>2<sup>nd</sup> week</u></b>	Transport of ions and small molecules across cell membranes (facilitated diffusion )	1	1	8.3
<b><u>3<sup>rd</sup> week</u></b>	Transport of ions and small molecules across cell membranes (primary and secondary active transport)	1	1	8.3
<b><u>4<sup>th</sup> week</u></b>	Cytoskeleton	1	1	8.3
<b><u>5<sup>th</sup> week</u></b>	Physiology of Cell cycle	1	1	8.3
<b><u>6<sup>th</sup> week</u></b>	pathophysiology of Cell cycle	1	1	8.3
<b><u>7<sup>th</sup> week</u></b>	Programmed cell death	1	1	8.3
<b><u>8<sup>th</sup> week</u></b>	Cell signaling	1	1	8.3
<b><u>9<sup>th</sup> week</u></b>	Cell signaling	1	1	8.3
<b><u>10<sup>th</sup> week</u></b>	cancer	1	1	8.3
<b><u>11<sup>th</sup> week</u></b>	cancer	1	1	8.3
<b><u>12<sup>th</sup> week</u></b>	Tumor suppressor genes and oncogenes	1	1	8.3
<b><u>Total</u></b>		12	12	100%

## **4- Teaching and learning Methods**

4.1- Lectures.

4.2- Practical sessions to gain practical skills.

4.3- Practical book for drawing.

## **- Student assessment Methods**

### **Histology:**

5.1- Written exams (short essays and MCQs).

5.2- Oral exam.

5.3- Practical exam (Identification of histological slides).

5.4- Course assignment and (practical) book to assess.

5.5- Attendance Criteria: The minimal acceptable attendance is 75%.

### **Assessment schedule of the 1<sup>st</sup> turn**

**Assessment 1:** Periodic and mid term MCQ assessment.

**Assessment 2:** Final practical examination.

**Assessment 3:** Final written examination.

**Assessment 4:** Final oral examination.

**Assessment 5:** Final drawing examination.

**Assessment 6:** Course assignment (practical book).

### **Weighting of assessments of the 1<sup>st</sup> turn**

Periodic and mid term MCQ assessment	20 marks	22, 2%
Final practical examination	10 marks	11, 1%
Final written Examination	32 marks	35, 5%
Final Oral Examination	9 marks	10%
Final drawing examination	12 marks	13, 3%
Course assignment (practical book)	7 marks	7, 7%.
<b>Total</b>	<b>90 marks</b>	<b>100%</b>

### **Physiology:**

Measured Skills (ILOs)	Tools	Time Schedule	Weight
Knowledge & understanding (A1) and Intellectual (B1).	(short essay and MCQs) Assessment 1:	By the end of the 5th week). by the end of the	33.5% (10 marks)

	Periodic assessment Assessment 2: Periodic assessment	9th week	
Knowledge & understanding (A1- A2), Intellectual (B1)	(short essay and MCQs) Assessment 4: Final written examination	by the end of the semester	50% (15 marks)
Knowledge & understanding (A1- A2), Intellectual (B1)& Some general skills (C1).	Assessment 5: Final oral examination	by the end of the semester	16.5% (5 marks)

## **6- List of references**

### **histology:**

#### 6.1- Essential Books (Text Books):

Junqueira, Carneiro and Kelly(2008) L.C,2016 Basic Histology,7<sup>th</sup> ed .Librairie du liban and Lang buruit ,London ,New York

#### 6.2-Recommended Books:

Fawcett (2006):A Text book of Histology ,12<sup>th</sup> edition .Chapman and Hall. New york ,London

#### 6.3- Periodicals:

Egyptian J of Histology

International J of Experimental Research

#### 6.4- Web Sites of histology:

<http://www.histology-world.com>

### **physiology :**

➤ lectures notes

➤ Recommended books

1-Physiology department book and Lectures note. (Lectures and practical)

2-Ganon textbook of physiology

3-Essential pathophysiology

➤ Journal and websites

1-American journal of physiology

## **7- Facilities required for teaching and learning**

1\_ Accommodation :

lecture room ,smart board to write on and computer

2\_ computing resources :

Computer lab and internet lab

3\_ other resources :

Library, seminar room ,

Wi-Fi internet connections .

Microscopes.

well-prepared glass slides for different tissues stained by routine and special stains.

**Course coordinator of Histology : Dr. Eman Ahmad Abd El-Rahim**

**Head of the department of Histology : Dr Amal Taha Abou El ghait  
Taha**

**Head of the physiology department : Dr/ Omayma Galal**