



**Kuwait University**  
**Health Sciences Centre**

<b>Course Title</b>	:	<b>Biology-1 for Health Sciences</b>
<b>Course no.</b>	:	<b>1420143</b>
<b>Credits</b>	:	4
<b>Total Clock hours</b>	:	78 h
<b>Lectures</b>	:	42 h
<b>Exercises</b>	:	36 h
		Practical = 3
		Workshops = 3
		Tutorials = 6
<b>Evaluations and exams:</b>		Midterm assessments = 1 (contribution to the final grade = 40%)
		Final examination = 1 (contribution to the final grade = 60%)
<b>Prerequisites</b>	:	None

**1. Aims and objectives of the course:**

**General objectives:**

This is an introductory course for the students of Health Sciences Centre.

It will cover some of the basic aspects of cell biology and its relevance to human health. With the knowledge gained through this course, the students of Health Sciences Centre should be able to advance into further understanding of basic biomedical sciences like Biochemistry, Molecular biology, Microbiology and Physiology, and appreciate the role of cell biology in human health.

**Specific objectives:**

At the end of this course, the students should be able to:

1. Understand the structural and functional aspects of a cell
2. Comprehend cell division, differentiation and growth
3. Appreciate the role of blood and understand some basic concepts in human immune response and its implication for human health
4. Know, in general, the structure and functions of bacteria, viruses, fungi and protozoa and their importance in human health
5. Understand the fundamentals of human genetics, reproduction and development
6. Appreciate the role of environment in human health and disease
7. Comprehend human evolution and eukaryotic diversity

**2. Course contents:**

**Theme Topic**

1. Introduction and characteristics of living things L1 to L2
2. The cells as the basic unit of life: L3 to L6
3. Cell division, development and differentiation L7 to L12
4. Blood cells and introduction to immunity L13 to L16
5. Introduction to microorganisms L17 to L24

6. Introduction to human genetics L25 to L30
7. Introduction to human reproduction and developmental biology L31 to L36
8. Environmental human biology L37 to L39
9. Evolution and diversity L40 to L42

### **3. Teaching plan:**

#### **A. Lectures (n=42)**

1. Introduction L1 and L2
2. The cell as the basic unit of life: Components of the cellular environment, cell structure and function L3 to L6
3. Cell division, development and differentiation L7 to L12
4. Blood cells and immunity L13 to L16
5. Introduction to microorganisms L17 to L24
6. Introduction to human genetics L25 to L30
7. Introduction to human reproduction and developmental biology L31 to L36
8. Environmental human biology L37 to L39
9. Evolution and diversity L40 to L42

#### **B. Practical (n=3)**

- P1: Light and fluorescence microscopy  
P2: Bacterial cell growth and staining  
P3: Karyotyping (chromosomal analysis)

#### **C. Workshops (n=3)**

- W1: Centrifugation and cell fractionation  
W2: Visit to the Central Blood Bank, Kuwait, to know the procedures of blood donation, typing, processing and storage and appreciate the importance of blood and blood products in human health  
W3: Visit to Mubarak Al-Kabeer Hospital's Microbiology Lab to know the common procedures used in the diagnosis of infections and appreciate their role in human health

#### **D. Tutorials (n=6)**

- T1: Introduction and the cells as the basic unit of life  
T2: Cell division, growth and differentiation  
T3: Blood cells and immunity  
T4: Introduction to microorganisms  
T5: Introduction to human genetics  
T6: Environmental human biology, evolution and diversity

### **4. Textbooks and Reading Materials:**

- Biology (9<sup>th</sup> Edition) by Sylvia S Mader
- Biology (7<sup>th</sup> Edition) by NA Campbell and JB Reece
- Handouts
- Internet sites
- Videos