



*Benha University.*  
*Faculty of Medicine.*  
*Department of Physiology.*

**Course Specifications**

**Course title: Physiology.**

**Code: MED 0703**

**Academic Year (2010 – 2011)**

- Department offering the course: Physiology.
- Academic year of M.B. & B.Ch. program: First year 2010 – 2011.
- Date of specification approval: Department council No: 184 Date:25/7/2010

Faculty council No:                      Date:

A) Basic Information:

- Allocated marks: 250marks.
- Course duration: 30 weeks of teaching.
- Teaching hours: 7 hours / week = 210 hrs total teaching hours.

	Hours / week	Total hours
1- Lectures	5hrs/week for 30 weeks	150 hrs
2- Small group teaching / tutorials		
3- Practical	2hrs/week for 30 weeks	60 hrs

<b>Total</b>	<b>30 weeks</b>	<b>210 hrs</b>
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## **B) Professional Information:**

### **1- Overall Aim of the Course:**

- 1.1. Introduction of the basic facts of physiology for the medical students in the 1st stage.
- 1.2. Helps the students to understand & interpret many medical problems specially those related to internal medicine.
- 1.3. Development of several practical capacities in the students related to experimental work.

### **2- Intended Learning Outcomes (ILOs):**

#### **2.1. Knowledge and understanding:**

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

- 2.1.1. Describe the functional organization & structure of various body systems and its relation to function.
- 2.1.2. Describe General & specific functions of the body systems.
- 2.1.3. Explain Mechanisms aiming at maintenance of homeostatic functions as: pH, osmolarity, body temperature, etc.....
- 2.1.4. Describe and explain some pathophysiological aspects underlying the development of common diseases.
- 2.1.5. Describe the integration between different body systems to maintain homeostasis.
- 2.1.6. Explain and describe the feedback controls and autoregulations that achieve the necessary balances without which we would not be able to live.
- 2.1.7. Explain the physical and chemical factors that are responsible for origin, development and progression of life.
- 2.1.8. Describe the adaptations that occur to maintain life and explaining them on physiological bases.

#### **2.2. Practical and Clinical Skills**

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

- 2.2.1. Have general skills for attendance in biological science laboratories.
- 2.2.2. Deal with experimental animals as: rats, frogs, and rabbits.
- 2.2.3. Have Skills for use of basic medical devices as sphygmomanometer, stethoscope and thermometer.
- 2.2.4 Primary analysis & interpretation of some physiological records (ECG & spirogram) and some laboratory tests (blood group, hemoglobin and E.S.R).
- 2.2.5 Identify different types of cardiac arrhythmia.
- 2.2.6 Perform chest examination and identify heart sounds

### **2.3. Professional Attitude and Behavioral kills:**

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

- 2.3.1. Demonstrate Respect for patients' rights and involve them and /or their caretakers in management decisions.
- 2.3.2. Demonstrate respect to all patients irrespective of their socioeconomic levels, culture or religious beliefs using appropriate language to establish a good patient-physician relationship.
- 2.3.3. Respect the role and the contributions of other health care professionals regardless their degrees or rank (top management, subordinate or colleague).
- 2.3.4. Reflect critically on their own performance and that of others, to recognize personal limitations regarding skills and knowledge to refer patients to appropriate health facility at the appropriate stage.

### **2.4. Communication skills:**

***By the end of the program the graduate will be able to:***

- 2.4.1. Communicate clearly, sensitively and effectively with patients and their relatives, and colleagues from a variety of health and social care professions.
- 2.4.2. Establish good relations with other health care professionals regardless their degrees or rank (top management, subordinate or colleague).
- 2.4.3. Communicate effectively with individuals regardless of their social, cultural, ethnic backgrounds, or their disabilities.
- 2.4.4. Cope up with difficult situations as breaking news.
- 2.4.5. Respect patients and their relatives, superiors, colleagues and all members of the health profession.

## **2.5. Intellectual Skills:**

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

- 2.5.1. Recognize Integration of facts about function of different organs subserving the homeostasis
- 2.5.2. Analyze medical problems related to diagnosis & treatment of physiological problems as: pH, osmolarity, etc....
- 2.5.3. Observe scientific phenomena during the practical study

## **2.6. General and transferable Skills:**

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

- 2.6.1. Develop of the capacity of free discussion of medical problems.
- 2.6.2. Establish life-long self-learning required for continuous professional development.
- 2.6.3. Use the sources of biomedical information and communication technology to remain current with advances in knowledge and practice.
- 2.6.4. Retrieve, manage, and manipulate information by all means, including electronic means.
- 2.6.5. Present information clearly in written, electronic and oral forms.

2.6.6. Establish effective interpersonal relationship to Communicate ideas and arguments.

### 3- Course contents:

Subject	Lectures (hrs)	Tutorial / Small group discussion (hrs)	Practical (hrs)	Total (hrs)	% of Total
<b>1- Introduction</b> (Cell membrane and transport across it, types of ion channels, Total body water, composition of ECF& ICF, homeostasis)	10			10	5%
<b>2- Autonomic nervous system</b> (Divisions of nervous system, Autonomic ganglia, Distribution of efferent autonomic fibers, Sympathetic nervous system, Parasympathetic nervous system, sympathetic and parasympathetic tone, Chemical transmission, cholinergic transmission, Adrenergic transmission, Denervation hypersensitivity and difference between adrenaline and noradrenaline)	20			20	9.5%
<b>3-Physiology of nerve and muscle</b> (Structure of neurons, Axonal transport, Excitability, Stimulus, Resting membrane potential, Action potential (ionic basis, Propagation, Recording), Excitability changes during an action potential, Mechanism of neuro-muscular transmission, properties of neuro-muscular transmission, Myasthenia gravis, Function of the skeletal muscles. Functional histology. Excitation contraction coupling, Molecular mechanism of muscle contraction. & walk along theory, clonus, tetanus, muscle fatigue, rigor mortis, reaction of muscle to denervation & EMG, Types of Smooth muscles, control of its contraction).	20			20	9.5%
<b>4- Blood</b> (General functions of the	20		30	50	23.8%

<i>blood. Composition of the blood, Plasma proteins, RBCs, Hemoglobin, Erythropoiesis, Anemias, White Blood Cell and Immunity, Blood typing &amp; Bloodtransfusion, Hemostasis, Anticoagulants, Hemostatic function tests).</i>					
<b>5- Circulation</b> ( <i>Physiological anatomy of the heart, Properties of the cardiac muscle, Cardiac Cycle, Electrocardiogram , The Cardiac Output, Heart Rate, Hemodynamics, Arterial blood pressure, Regulation of ABP, Microcirculation, Venous Circulation, Lymphatic Circulation, Edema, The Coronary Circulation, The Pulmonary Circulation, The Cerebral Circulation, Cardiovascular homeostasis in health and disease, Shock, Effect of exercise on the circulation, Hypertension and heart failure).</i>	50		22	72	34.2%
<b>6- Respiratory:</b> ( <i>Physiological anatomy of the respiratory system, Mechanics of respiration &amp; respiratory cycle, Lung volumes and capacities, Oxygen transport by blood, Carbon dioxide transport by the blood, Regulation of respiration (Localization of respiratory centers, generation of rhythmic respiration, Hypoxia, Cyanosis, Asphyxia, Effect of muscular exercise on respiration, Artificial respiration, Effect of exposure to increased barometric pressure. )</i>	20			20	9.5%
<b>7- Revision</b>	10		8	18	8.5%
<b>TOTAL</b>	<b>150</b>		<b>60</b>	<b>210</b>	<b>100%</b>

#### 4- Teaching and learning methods:

##### **METHODS USED:**

1. Lectures.
2. Practical classes

##### **TEACHING PLAIN:**

Lectures: 150 lectures

Tutorials: .....

Practical classes: 60 practical classes

Time plain:

Item	Time schedule	Teaching hours	Total hours
Lectures	5 Times/week	150hours	71.4%
Practical classes	2Hours/ week	60hours	28.6%
Tutorials			
<b>Total</b>		<b>210 hours</b>	<b>100%</b>

#### 5- Students Assessment methods:

##### 5-A) ATTENDANCE CRITERIA:

1. Practical attendance
2. Log book

##### 5-B) Assessment TOOLS:

<b>Tool</b>	<b>Purpose (ILOs)</b>
Written examination	To assess knowledge acquisition, including MCQs
Oral examination	To assess understanding and stability of knowledge given, attitude and presentation.
Practical examination	To assess practical skills.

**5-C) TIME SCHEDULE:**

<b>Exam</b>	<b>Week</b>
1- Assessment 1	Week -----12
2- Assessment 2	Week -----22
4- Final exam	At end of year (week 30)

**5-D) Weighting System:**

<b>Examination</b>	<b>Marks allocated</b>	<b>% of Total Marks</b>
1- Mid-term exam	50	20%
3- Final exam:		
a- Written	125	48%
b- Practical	25	12%
c- Oral	50	20%
4- Assignments & other activities	-----	-----
<b>Total</b>	<b>250</b>	<b>100%</b>

**FORMATIVE ASSESSMENT:**

- Student knows his marks after the Formative exams.

**5-E) Examination description:**

<b>Examination</b>	<b>Description</b>
1- Mid-term exam	Quiz (MCQs)
3- Final exam:	
a- Written	Long and short ac quision
b- Practical	Determination of blood group, Hb content, osmotic fragility, calculation of blood indices, determination of Bl. Pressure.
	How many sessions



c- Oral	
4- Assignments & other activities	Assignments, projects, practical books etc

## **6- List of references:**

### 6.1- Basic materials:

Department books:

- 1- Medical physiology
- 2- Practical book

### 6.2- Essential books (text books):

- a) Textbook of Medical Physiology (Guyton & Hall).
- b) Review of Medical Physiology (William F. Ganong)

### 6.3- Recommended books:

Physiology (NMS).

### 6.4- Periodicals, Web sites, etc:

- <http://www.medscape.com>.
- <http://www.pubmed.com>.
- <http://sciencedirect.com>.

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

Facilities used for teaching this course include:

- Faculty lectures halls: 3
- Department lectures halls: 1
- Department laboratories: 2

**Course coordinator: Prof Dr. Alaa Abd- Elaziz Al-teles**

**Head of Department: Prof Dr. Alaa Abd- Elaziz Al-teles**

**Date : 2010 – 2011.**