



Quality Assurance Unit



Tanta University
Faculty of Medicine

Department of Physiology

Course Specifications

Physiology First Year

2011-2012

Physiology First Year Course specifications

University: Tanta

Faculty: Medicine

Department: Physiology

1- Administrative Information

- **Course title : Physiology**
- **Code: TMED.0103**
- **Department offering the course: Department of Physiology**
- **Program (s) on which this course is given: Bachelor of Medicine and Surgery (M.B.B.Ch).**
- **Academic year/ Level : First year of M.B.B.Ch**
- **Semester in which the course is given: one academic year**
- **Date of approval by department/faculty council :21/9/2012**

The Board of Department of Physiology on:

The Internal Quality Assurance & Accreditation Center on:

Council of the Faculty of Medicine, Tanta University on:

- **Taught hours:**
 - **Lectures : 5 hours/w (150 hours)**
 - **Tutorial : 2 hours /**
 - **Practical : 2w practical and tutorial alternating (60**
 - **Total : 2 hours/2 hours)**
- w**
- 210 hours**

2 – Overall Course Aims

- Acquire an appropriate functional background of cells, tissues, organs & systems.
- Integrate physiological data & mechanisms with the ongoing basic sciences : anatomy, histology & biochemistry and clinical applications.
- Follow the rapidly changing and inflating details about molecular biology & genetics.
- Explore in detail the functions of the autonomic, the neuromuscular, the respiratory and the cardiovascular systems as well as their integration to achieve homeostasis.
- Develop the basic scientific research skills as well as effective communication and team work attitudes.
- Describe clearly the altered development, growth, structure and function of the body that occur as a result of disease.

3– Intended learning outcomes (ILOs):

a. knowledge and understanding:

- a1. Describe the cellular functions at the organelle and molecular level.
- a2. Describe some biophysical laws and their relation to physiology.
- a3. Describe and explain some pathophysiological aspects underlying the development of common diseases.
- a4. Describe the integration between different body systems to maintain homeostasis.
- a5. Describe the adaptations that occur to maintain life and explaining them on physiological bases
- a6. Explain Mechanisms aiming at maintenance of homeostatic functions as: pH, osmolarity, body temperature, etc.....

b. Intellectual skills:

- b1. Interpret the most important physiological laboratory results (blood, respiratory, neuromuscular), to distinguish a physiological from a pathological condition.
- b2. Explain & interpret some clinical parameters such as ABP, ECG, nerve conduction velocity & pulmonary functions for a normal individual.
- b3. Compare physiology with other basic and clinical sciences.

c. Professional & practical skills:

- c1 Classify symptoms and physical signs in terms of anatomic, pathologic and functional diagnostic significance.
- c2 Perform hematological tests; estimation of blood Hb, bleeding & clotting times, determination of the hematocrite value and blood groups.
- c3 Perform the most important respiratory function tests.
- c4 Perform the measurement of the arterial blood pressure.
- c5 Manipulate a stethoscope for hearing heart and respiratory sounds.
- c6 Record and read an electrocardiogram.
- c7 Draw & construct physiological scientific data in a graphical form.

d. General transferable skills:

- d1 Adopt the principles of lifelong learning
- d2 Consider the ability to do continued self assessment of their current medical practice aiming to update and improve it.
- d3 Know when and how to ask for senior consultation

- d4 Identify his/her personal weaknesses through accurate self-assessment and/or supervisors and colleagues and actively set a clear learning plan to address these weaknesses
- d5 Develop the resources of biomedical information including the available electronic facilities to update his/her knowledge
- d6 The ability to maintain a professional image in manner, dress, speech and interpersonal relationships that is consistent with the accepted contemporary medical profession standards
- d7 Work separately or in a team to research and prepare a scientific topic.
- d8 Present clearly and effectively a scientific topic in a tutorial, a staff meeting or the yearly scientific day.

4- Topics (Contents of the course)			
Theoretical topic	No. of hrs.		
	Lectures	Practical/ Small groups	Total
<u>1. Introduction</u> -Functional relation of organs and systems to each other..... -Homeostasis.....	1hours 4hours		5 hours
<u>2. Respiration</u> -Introduction& mechanism of respiration..... -I.p.p. & Lung compliance..... -Lung surfactant & Resp. work of breathing..... -Dead space..... -Lung Volumes & Capacities -Mechanism of gas exchange..... -Pulmonary function tests..... -Respiratory functions of the blood..... -Respiratory centre & mechanism of respiration..... -Regulation of respiration -Acid – Base balance..... -Hypoxia and cyanosis..... -Acclimatization to low O ₂ tension & Miscellaneous...	2hours 2hours 2hours 2hours 2hours 2hours 4hours 2hours 4hours 2hours 2hours 2hours 4hours 2hours 2hours		30 hours

<p><u>3. Blood</u></p> <ul style="list-style-type: none"> - Introduction & properties of blood - Function of the blood - Body fluids - Plasma protein - Hemostasis - BL. Volume & its regulation..... - Erythrocytes - Blood group & Leucocytes - Immunity 	<p>2hours 1hours 1hours 2hours 4hours 2hours 4hours 2hours 2hours</p>	<p>4hours 4hours 8hours 8hours 4hours Revision (2 h.)</p>	<p>50 hours (20 h. Lectures + 30 h. Practical)</p>
<p><u>4. Cardiovascular System</u></p> <ul style="list-style-type: none"> - Introduction & Properties - Electrocardiogram - Cardiac cycle (Radial – jugular-Sounds)..... - Innervations & Heart rate - Cardiac output & cardiac work - Arterial blood pressure - Diameter of arterioles - Capillary & lymphatic circulation - Coronary & pulmonary circulation - Cerebral & hepatic circulation - Muscular exercises on C.V.S - Hemorrhage & Shock 	<p>8hours 5hours 5hours 4hours 5hours 5hours 5hours 5hours 5hours 5hours 5hours 4hours</p>	<p>8hours 8hours 6hours Revision (3 h.)</p>	<p>86 hours (61 h. Lectures + 25 h. Practical)</p>
<p><u>5. Autonomic Nervous System</u></p> <ul style="list-style-type: none"> - Introduction - Autonomic ganglia - Sympathetic Parasympathetic - Chemical transmission 	<p>3hours 2hours 3hours 2hours 6hours</p>		<p>16 hours</p>

<u>6. Excitable tissue</u>			
- Nerve	8hours		23 hours (18 h. Lectures + 5 h. Practical)
- Neuromuscular junction	2hours		
- Skeletal Muscle	6hours	4hours	
- Smooth Muscle	2hours	Revision (1 h.)	
<u>Total</u>	150 hours	60 hours	210 hours

5-Teaching and learning methods

a. Teaching methods:

5-1.Lectures (5 hours / week):

- All the students attend in one big lecture hall.

5-2.Tutorial (2hours / every 2weeks):

- Half of the students attend in a small lecture hall.
- Tutorial class is scheduled and previously announced, the subjects that conventionally directed are lagging by few weeks to the related branches and systems given at that time in the lecture. Special topics from the curriculum are discussed in the tutorial.

5-3.Laboratory demonstration, practical training and problem-based learning, half of the students are divided into small subgroups, 2 hours / every 2 weeks alternating with the tutorial:

- A year scientific day for the students in the form of small groups' presentation. The title of the subjects is determined during several meetings with the staff members. Each teaching method is designed to serve different educational goal, and together they provide an appropriately stimulating atmosphere for learning.

5-4.Methods for disabled students:

- No special arrangements are available

b. Teaching plan:

Item	Time schedule	Teaching hours
Lectures	5 hours/w	150 hours*
Practical and tutorial classes	Alternating groups 2hours/w	60 hours**
Total		210 hours

*** Details of teaching hours of lectures:**

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No.	Date	Introd.	Blood	N&M	Resp.	A.N.S	C.V.S
1.	2/10/2011	5	XX	XX	XX	XX	XX
2.	9/10/2011	XX	3	XX	XX	2	XX
3.	16/10/2011	XX	3	XX	XX	2	XX
4.	23/10/2011	XX	3	XX	XX	2	XX
5.	30/10/2011	XX	3	XX	XX	2	XX
6.	13/11/2011	XX	3	XX	XX	2	XX
7.	20/11/2011	XX	3	XX	XX	2	XX
8.	27/11/2011	XX	2	1	XX	2	XX
9.	4/12/2011	XX	XX	3	XX	2	XX
10.	11/12/2011	XX	XX	3	2	XX	XX
11.	18/12/2011	XX	XX	3	2	XX	XX
12.	25/12/2011	XX	XX	3	2	XX	XX
13.	1/1/2012	XX	XX	3	2	XX	XX
14.	8/1/2012	XX	XX	2	2	XX	1
15.	15/1/2012	XX	XX	XX	2	XX	3
16.	22/1/2012	XX	XX	XX	2	XX	3
17.	12/2/2012	XX	XX	XX	2	XX	3
18.	4/3/2012	XX	XX	XX	2	XX	3
19.	11/3/2012	XX	XX	XX	2	XX	3
20.	18/3/2012	XX	XX	XX	2	XX	3
21.	25/3/2012	XX	XX	XX	2	XX	3
22.	1/4/2012	XX	XX	XX	2	XX	3
23.	8/4/2012	XX	XX	XX	2	XX	3
24.	15/4/2012	XX	XX	XX	2	XX	3
25.	22/4/2012	XX	XX	XX	XX	XX	5
26.	29/4/2012	XX	XX	XX	XX	XX	5
27.	6/5/2012	XX	XX	XX	XX	XX	5
28.	13/5/2012	XX	XX	XX	XX	XX	5
29.	20/5/2012	XX	XX	XX	XX	XX	5
30.	27/5/2012	XX	XX	XX	XX	XX	5

**** Details of teaching hours of Practical classes:**

No.	Experiment	hours	date
1.	Haematocrit value	4 hours	16/10/2011
2.	E.S.R	4 hours	23/10/2011

3.	Pacemaker	4 hours	30/10/2011
4.	Extrasystole and compensatory pause	4 hours	13/11/2011
5.	Bleeding time & hiss test	4 hours	20/11/2011
6.	Coagulation time	4 hours	27/11/2011
7.	Estimation of Hemoglobin content	4 hours	4/12/2011
8.	Osmotic fragility	4 hours	11/12/2011
9.	Blood groups	4 hours	18 & 25/12/2011
10.	ECG	8 hours	1, 8 & 15/1/2012
11.	Effects of temperature & fatigue on SMT	4 hours	22/1/2012
12.	ABP	6 hours	12/2/2012 & 4/3/2012
13.	REVISION	6 hours	11 & 18/3/2012

6-Student Assessment :

a. Methods used:

6-1. Final Written examination to assess (a1-2),(b1-4)

6-2. Final Oral examination to assess (a1-2),(b1-4) (c1-7)

6-3. Final Practical examination to assess a1- a2, b1-b3, c1-c6 & d1-d8.

One examination in May and the other in September, for the students who failed, to pass the course

b. Assessment schedule:

Assessment	Week
1. First assessment.	12 th week
2. Second assessment.	24 th week
3. Midyear examination.	18 th week
4. Final written examination.	31 th week
5. Final oral examination.	31 th week
6. Final practical examination.	28 st week

c. Weighing of assessments:

Exam	Marks	% of Total
Continous assessment (2 examination the higher grades will be taken)	12.5	5%

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Midyear examination	37.5	15 %
written examination	125	50%
Oral examination.	50	20%
Practical examination.	25	10%
Total	250	100%

d. Attendance criteria:

- Practical attendance: The minimal attendance in practical and tutorial classes is 70%. 5 marks out of the practical will be allocated to the attendance.
- Practical books

e. Grading System

Examination	Topic	Description	Marks
Periodical Examinations	Sheet examinations	MCQ, true and false questions	12.5 marks = 5%
Midyear exam	Sheet examination	MCQ, true and false and problem solving questions	37.5 marks = 15%
Final Examination	1.Written examination	Short note Questions in all studied systems;	
		Blood.....	20 marks = 16%
		Respiration.....	25 marks = 20%
		Cardiovascular System.....	40 marks = 32%
		Autonomic Nervous system.....	20 marks = 16%
		Excitable tissues.....	20 marks = 16%
			Total 125marks 50%
	2.Practical examination.	2 hours examination.	20 marks for the exam. and 5 marks are deduced for attendance in practical courses Total 25marks = 10%
	3.Oral examination	each student is evaluated by 2 examiners	25 marks for each examiner Total 50 marks = 20%
Total			250 Marks = 100 %

The minimum passing score is 150 marks (60% of the total marks) provided that, at least 37.5 mark (30% of written exam) are obtained in the final written examination.

Passing grades are:

- Excellent : 85%
 Very Good : ≥75% - < 85%

Good : $\geq 65\%$ - $< 75\%$

Pass : $\geq 60\%$ - $< 65\%$

Examination Description:

Summative assessments are the only used assessment methods at the end of the year (no formative assessment). They are matched with the ILOs and faculty by laws.

7- List of references

- 7-1. Course notes
Department book written by the staff members .
- 7-2. Text book
 - 1. Gyton on textbook of Human Physiology and Mechanisms of Disease.
 - 2. Ganongs review of Medical physiology.
- 7-3. Recommended books
 - 1. Kaplan Lecture Notes: Physiology
 - 2. Elsevier's Integrated Physiology
 - 3. Physiology: Board Review series
- 7-4. Periodicals and web sites
 - 1. www.Medscap.com
 - 2. www.pubmed.org.

8-Facilities for learning and teaching resources

- 1. Lecture halls: One in the 2nd of the faculty building for the theoretical lectures supplied with writing board, overhead projector, slide projector and data show.
- 2. Two lecture halls in the department (capacity 70 students), supplied with writing board, overhead projector, slide projector and data show.
- 3. Two small laboratories, capacity 75 students /lab, supplied with written board and data show.
- 4. One big lab, capacity 150 students, supplied with written board.

Course coordinator

Name/ Professor Doctor Salma Elwi Nassar

signature.....Date.....

Head of department

Name/ Professor Doctor Sahar Elsayy signature.....Date.....

Intended learning outcomes of the course (A)

The name of course	
Code of course	

Academy / University:.....

Faculty:

Department:

Topics of the course	Week Study	Knowledge & Understanding	Intellectual Skills	Professional Skills	General transferable skills
General physiology	First week	A1-a4	B1-b2	C1-c3	D1-d4
Autonomic nervous system	2 nd to 9 th weeks	A2-a6	B2-b3	C2-c4	D2-d6
Nerve & muscles	8 th to 14 th week	A1-a3	B1-b2	C3-c5	D3-d7
blood	2 nd to 8 th weeks	A3-a6	B1-b3	C1-c4	D1-d5
respiration	10 th to 24 th weeks	A2-a5	B1-b3	C1-c5	D2-d8
Cardiovascular system	14 th to 30 th	A1-a6	B2-b3	C2-c7	D1-d6

Course coordinator...

Head of the department:.....