Quality Assurance Unit

Tanta University
Faculty of Medicine

Department of Medical Physiology

Course Specifications

Medical Physiology Second Year

2017-2018

Medical Physiology Second year Course specifications

University: Tanta **Faculty: Medicine** **Department: Medical Physiology**

1- Administrative Information

- **Course title: Medical Physiology**
- **Code: TMED.02:03**
- **Department offering the course: Department of Medical Physiology**
- **Program (s) on which this course is given: Bachelor of Medicine and Surgery (M.B.B.Ch).**
- **Departments offering the program: All departments of the faculty of Medicine**
- **Academic year/ Level : second year of M.B.B.Ch**
- **Semester in which the course is given: one academic year**
- **Date of specifications /revision: /8/2017**
- **Date of approval by department/faculty council: /9/2017**
- **Date of approval by faculty council: / /**
- **Taught hours: in 30 weeks**

- **Lectures 150 hours (5 hr/week)**
- **Practical 60 hours (2hr/week) Extra added hours Tutorial: 2 hours / 2weeks**
- **Total 210 hours (7hr/week)**

2 – Overall Course Aims

This course aims to enable students to:

- Continue upgrading the physiological basis taken in his first year.
- Explore in details the functions of the endocrinal, the reproductive, the nervous, the renal & the digestive systems as well as their integration to achieve homeostasis.
- Integrate physiological data & mechanisms with the ongoing basic sciences: and their clinical applications..
- Develop the basic skills as well as effective communication and team work attitude.

3– Intended learning outcomes (ILOs):

a. knowledge and understanding:

At the end of the course the student will be able to:

a1. Describe the normal and altered structure and function of the human body and mind that occur as a result of disease

a2. Identify the control of posture and movement.

a3. Specify different sensory pathways, sensory coding and sensory lesions and State synaptic and junctional transmission,

a4. Express the normal and abnormal human behaviors such as neural basis of sleep, alertness, intellectual behaviors, emotions, learning and memory.

a5. Outline the photoreceptor mechanism, image forming, and other aspects of visual functions.

a6. Recognize the physiology of hearing and equilibrium.
a7. Describe the physiology of taste and smell.
a8. Name and analyze the structural-functional relationship of the renal system and its integrative function with other organ systems.
a9. Explain the components of the thermoregulation system.
a10. Express the underlying Physiology and Pathophysiology of different endocrine gland and their function tests in health and disease.
a11. Recognize the Physiology of male and female reproductive system and their development from the time birth till old age
a12. Outline the Physiology of gastrointestinal tract
a13. Explain how each system responds to specific stimuli, either physical or environmental, factors and explain how the responses contribute to the etiology of disease.
a14. Identify the metabolism from the physiology point of view.

b. Intellectual skills:

At the end of the course the student will be able to:

b1. Compare between physiological and pathological performance of different body systems.
b2. Demonstrate similarities between different body systems.
b3. Analyze appropriate information selected for related research topic.
b4. Explain approaches in Physiology to specific problems and cases.
b5. Analyze and interpret Tests to Examine different endocrine gland
b6.Integrate between Physiology and other related sciences (anatomy, biochemistry) and clinical sciences.

c.Professional & practical skills:

At the end of the course the student will be able to:

c1 . Conduct experiment design for study of physiological phenomena.
c2 . Construct altered symptoms and physical signs in terms of functional diagnostic significances using experimental data to assess health status ..
c3 Perform a systematic motor system examination for types of sensations, tendons jerks and muscle tone.
c4 . Perform the most important visual tests: corneal, light & accommodation reflexes, visual acuity, color vision and visual field defects

d. General transferable skills, Professional Attitude and Communication Skills:

At the end of the course the student will be able to:

d1. Respect all interactions with colleagues, and others with whom the physician must interact in their professional life
d2. Adopt the principles of lifelong learning needs of the medical profession.
d3. Use information and communication technology effectively in the field of the medical practice.
d4. Present information clearly in written, electronic, and oral forms.
d5. Work effectively within a team.

d6. Communicate ideas and arguments effectively with colleagues and other individuals regardless of their different background.

4- Topics (Contents of the course)

Theoretical topic	No. of hrs.		
	Lectures	Practical*/ Small groups	Total
1. Central Nervous System (48 hours)			
Sensory (19 hours)			88 hours (48 h. Lectures + 40 h. Practical)
- Introduction &Receptors	3hours	4hours	
- Somatic sensations (Mechano. &thermo)	3hours	8hours	
- Pain	3hours	4hours	
- Somatic sensations from the head	1hours	4hours	
- Pain analgesia system	2hours	4hours	
-Thalamus	2hours	2hours	
-Somatic sensory areas	2hours		
-Abnormal sensations	3hours	2hours	
Motor (29 hours)			
- Motor cortex & descending tracts	3hours		
- Basal ganglia	2hours		
- Cerebellum	2hours		
- Synaptic transmission & Reflex action	4hours	4hours	
- Stretch reflex	3hours	4hours	
- Motor lesions	5hours	2hours	
- Equilibrium	4hours	2hours	
- Hypothalamus & intellectual function	6hours		
2. Endocrine and Reproduction (30 hours)			
- Introduction	2hours		36 hours (30 h. Lectures + 6 h. Practical)
- Thyroid gland	4hours	2hours	
- Calcium homeostasis	3hours		
- Suprarenal gland	4hours	2hours	
- Pancreas	2hours	2hours	
- Pituitary gland &pineal gland	3hours		
- Male reproduction	3hours		
- Female reproduction	4hours		
- Pregnancy & lactation	3hours		
- Abnormal gonads	2hours		
3. Metabolism (12 hours)			
- Introduction, R.Q, B.M..R &S.D.A	3hours		12 hours
- Metabolism during muscular exercise	2hours		
- Regulation of body temperature	4hours		
- Nutrition &Starvation	3hours		
4.Renal System (12 hours)			

Theoretical topic	No. of hrs.		
	Lectures	Practical*/ Small groups	Total
- Introduction, Function of kidneys &R.B.F - G.F.R.& plasma clearance - Renal tubules - Diuretics & renal function tests - Urinary bladder & Micturition	3hours 2hours 3hours 2hours 2hours	2hours	14 hours (12 h. Lectures + 2 h. Practical)
5.Special Senses (30 hours)			
- Introduction & Ocular appendages - Aqueous & Glaucoma - Cornea - Lens - Accommodation - Middle layer - Retina - Color vision - Visual pathway & binocular vision - Hearing sensation - Taste sensation -Smell sensation	2hours 1hours 2hours 2hours 2hours 2hours 4hours 2hours 2hours 8hours 2hours 1hours	2hours 2hours 2hours 2hours 2hours 2hours	42 hours (30 h. Lectures + 12 h. Practical)
6.Digestion (18 hours)			
- Introduction, Salivary secretion &Deglutition - Gastric secretion - Pancreatic secretion - Bile secretion , jaundice& liver - Small & large intestine - Absorption	3hours 4hours 3hours 4hours 3hours 1hours		18 hours
Total	150 hours	60 hours	210 hours

*** Details of teaching hours of Practical Course (60hours):**

1. Central Nervous System (40 hours):

Examination of; sensory, motor systems, muscle tone, tendon jerk and other reflexes, examination of the cranial nerves and demonstration to some clinical disorders of C.N.S.

2. Endocrine and Reproduction (6 hours):

Demonstration of function tests and clinical disorders of some endocrine glands.

3. Renal and (2 hours):

Kidney function tests.

4. Special Senses (12 hours):

Tests of hearing, Accommodation and olfaction. Examination of Visual acuity, Visual field and Fundus examination

5-Teaching and learning methods

a. Teaching methods:

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

- All the students attend in one big lecture hall.
- E-learning is activated

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 the students is divided into small subgroups, 2 hours / every 2 weeks alternating with the tutorial.

5-4. Practical book activities

5-5. 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:**

NO.	Date	C.N.S	Endo.	Spec.S.	Kidney	Digest.	Metab
1.	**16/9/2017**	2	2	1	XX	XX	XX
2.	**23/9/2017**	2	2	1	XX	xx	xx
3.	**30/9/2017**	2	2	1	XX	XX	XX
4.	**7/10/2017**	2	2	1	XX	XX	XX
5.	**14/10/2017**	2	2	1	XX	XX	XX
6.	**21/10/2017**	2	2	1	XX	XX	XX
7.	**28/10/2017**	2	2	1	XX	XX	XX
8.	**4/11/2017**	2	2	1	XX	XX	XX
9.	**11/11/2017**	2	2	1	XX	XX	XX
10.	**18/11/2017**	2	2	1	XX	XX	XX
11.	**25/11/2017**	2	2	1	XX	XX	XX
12.	**2/12/2017**	2	2	1	XX	XX	XX
13.	**9/12/2017**	2	2	1	XX	XX	XX
14.	**16/12/2017**	2	2	1	XX	XX	XX
15.	**23/12/2017**	2	2	1	XX	XX	XX
16.	**30/12/2017**	2	XX	1	2	XX	XX
	6/1/2018	**Midyear exam**					
	13/1/2018						
	20/1/2018	**Midyear holiday**					
	27/1/2018						
17.	**3/2/2018**	1	XX	1	1	1	1
18.	**10/2/2018**	1	XX	1	1	1	1

NO.	Date	C.N.S	Endo.	Spec.S.	Kidney	Digest.	Metab
19.	**17/2/2018**	1	XX	1	1	1	1
20.	**24/2/2018**	1	XX	1	1	1	1
21.	**3/3/2018**	1	XX	1	1	1	1
22.	**10/3/2018**	1	XX	1	1	1	1
23.	**17/3/2018**	1	XX	1	1	1	1
24.	**24/3/2018**	1	XX	1	1	1	1
25.	**31/3/2018**	1	XX	1	1	1	1
26.	**7/4/2018**	1	XX	1	1	1	1
27.	**14/4/2018**	1	XX	1	XX	2	1
28.	**21/4/2018**	1	XX	1	XX	2	1
29.	**28/4/2018**	2	XX	1	XX	2	XX
30.	**5/5/2018**	2	XX	1	XX	2	XX

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

No.	Experiment	hours	Date (No. of the week)
A) Central Nervous System experiments			
1.	Introduction& Crude touch	4 h.	3rd week
2.	Fine touch	4 h.	4th week
3.	Vibration Sense	4 h.	5th week
4.	Pain	4 h.	6th & 7th weeks
5.	5th cranial nerve	4 h.	14th week
6.	7th cranial nerve	4 h.	15th week
7.	Superficial reflexes	4 h.	19th weeks
8.	Stretch reflex	4 h.	20th week
9.	Tendon Jerk	4 h.	21st week
B) Special sense experiments			
10.	Olfactory nerve	2 h.	9th week
11.	Optic nerve	2 h.	10th & 11th weeks
12.	3rd, 4th, 6th cranial nerves	2 h.	12th & 13th weeks
13.	8th cranial nerve	2 h.	16th &17th weeks
C) Endocrine experiments			
14.	Thyroid function tests	2 h.	23rd weeks
15.	Suprarenal function tests	2 h.	24th weeks
16.	Function tests of pancreas	2 h.	25th week
D) Renal experiments			
17.	Renal function tests	2h.	26th week
E) REVISIONS		8 h.	8th, 18th, 22nd,27thwks

6-Student Assessment:

a. Methods used:

6-1. Final Written examination to assess (a1-a14),(b1-b6)

6-2. Final Oral examination to assess (a1-14),(b1-b6) (c1,c2)

6-3. Final Practical examination to assess a1- a2, b1- b3, c1- c4 & d1, d6.

6-4. Periodical exams(2exams) to assess (a1-a14),(b1-b4)

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.	12th week
2. Second assessment.	24th week
3. Midyear examination.	17th week
4. Final written examination.	36th week
5. Final oral examination.	36th week
6. Final practical examination.	33rd week

c. Weighing of assessments:

Exam	Marks	% of Total
Periodical exams (2 examinations)	25	10%
Midyear examination	25	10 %
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 75%.
- Practical books

e. Grading System

Examination	Topic	Description	Marks
2Periodical Exams	Sheet exams	MCQ	25 marks = 10%
Midyear exam	Sheet examination	MCQ	25 marks = 10%
Final Examination	1.Written examination	MCQ and short questions in all studied systems(define, problem solving , define ,draw and label ,explain the mechanism of ,compare ,enumerate) ; CNS Endocrine Special senses Digestive system Renal Metabolism	 35 marks = 14% 25 marks = 10% 20 marks = 8% 15 marks = 6% 15 marks = 6% 15 marks = 6%

Examination	Topic	Description	Marks
			Total 125 marks 50%
	2.Practical examination.	2 hours examination.	15 marks for the exam in form of MCQ . 10 marks how to do the experiments Total 25marks = 10%
	3.Oral examination	each student is evaluated by 2 examiners	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 marks (30% of written exam) are obtained in the final written examination.

Passing grades are:

Excellent	85%
Very Good	≥75% - < 85%
Good	≥ 65% - < 75%
Pass	≥ 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.Guyton C., Hall E. " Human Physiology and Mechanisms of Disease" . 6th ed., Saunders 1997.
2.Kim E. Barrett, Susan M. Barman " Gagnong's review of Medical physiology ". 24th ed., Scott Boitano and Heddwen Brooks , 2012.

7-3. Recommended books

1. Kaplan Medical Staff ."Kaplan medical USMLE step 1 Physiology Lecture Notes". 2012.
2. Caroll R.G. "Elsevier's Integrated Physiology". In series of Elsevier's Integrated. Mosby, 2006
1. 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 floor 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. Four laboratories, capacity 75 students /lab, supplied with written board and data show.

We verify that the above Course and the analysis of students and external evaluator opinions are accurate.

Course coordinator and head of department
name……..signature……Date…….

Head of quality assurance unit:
name……..signature……Date…….

(A) Intended learning outcomes of the course

The name of course	Physiology for 2nd year
Code of course	TMED.02:03

University: Tanta
Faculty: medicine
Department: Physiology

Topics of the course Theoritical and practical	Week Study	Knowledge & Understanding	Intellectual Skills	Professional Skills	General transferable skills
Central Nervous System	1st to 24th week	a1, 2, 3, 12, 14	b1,2, 3,5,6	c1, 3,	d1-d2
Endocrine and Reproduction	1st to 15th week	a10, 11	b1, 2	c1, 4	d1-d2
Special Senses	1st to 30th week	a4, 5, 6	b1, 2, 4	c1, 4	d1-d2
Renal System	16th to 21st week	a7	b1, 2	c1, 2	d1-d2
Digestion	22th to 30th week	a9	b1, 2,b6	c1, 2	d1-d2
Metabolism	25th to 30th week	a8, 13	b2	c1, 2	d1-d2
other activities	1st to 30th week	a1-a14	b1 –b4, b6	c1,c2	d1-d6

program ILOs versus courses matrix																					
Course ILOS \ program ILOS		knowledge & understanding					Intellectual skills					Professional & practical skills					General , transferable, Professional Attitude and communication skills				
knowledge & understanding	a.1.	a1	a3																		
	a.2.	a1																			
	a.3.	a1																			
	a.4.	a1	a4																		
	a.5.	a1																			
	a.6.	a1																			
	a.7.	a1																			
	a.8.	a1																			
	a.9.	a1																			
	a.10.	a1	a3	a5																	
	a.11.	a1	a2																		
	a.12.	a1																			
	a.13.	a1																			
	a.14.	a1																			
Intellectual skills	b.1.						B1,d														
	b.2.																				
	b.3.						b11														
	b.4.						b8														
	b.5.						b3														
	b.6.						b5														
Professional & practical skills	c.1.											c1f									
	c.2.											c4	c1f								
	c.3.											c3	c1f								
	c.4.											c3	c1f								
General , transferable, Professional Attitude and communication skills	d.1.																d3				
	d.2.																d12				
	d.3.																d13				
	d.4.																d14				
	d.5.																d15	d20			
	d.6.																d8	d9			