



Quality Assurance Unit



**Tanta University
Faculty of Medicine**

Department of Medical Physiology

Course specifications

Medical Physiology for M.D in Cardiology

2016/2017

Medical Physiology for Cardiology Doctorate degrees Course specifications

University: Tanta

Faculty: Medicine

Department: Medical Physiology

A- Administrative Information

- **Program title: Medical Physiology for M.D in Cardiology**
- **Department offering the program: Cardiology Department**
- **Departments responsible for the program: Medical Physiology&Cardiology Department**

Course Code: CARD 9001

- **Academic year/ Level : 2016/2017**
- **No. of Credit/taught hours: 7 credit hour**
- **Authorization date of course specification: / /**

B- Professional Information

1- Overall Course aims:

Our course aim to :

- Help the students emphasizing reading ,discussion and recent knowledge .
- Acquire the graduate with advanced understanding of the Medical Physiology mechanisms by which the body responds to internal and external stimuli and to provide the basis for understanding the mechanisms behind pathological responses to these stimuli.
- Discuss selected topics in Medical Physiology at greater depth
- Help the students to know the physiological principles underlying pathogenesis and treatment of disease.

2- Intended learning outcomes (ILOs):

a. knowledge and understanding:

At the end of the course graduate should be able to

- a.1. Specify topics closely related to cardiology
- a.2. Identify selected topics in Medical Physiology for cardiology at greater depth
- a.3. Summarize the physiological principles underlying pathogenesis and treatment of disease.
- a.4. Recognize with advanced understanding of the Medical Physiology mechanisms by which the body responds to internal and external stimuli and to provide the basis for understanding the mechanisms behind pathological responses to these stimuli.

b. Intellectual skills:

At the end of the course graduate should be able to

- b.1. Practice reading, discussion and recent knowledge.
- b.2. Revise with awareness of the various systematic approaches to reduce medical errors and how to implement system solutions

b.3. Evaluate cardiac function tests,

d. General transferable skills:

At the end of the course graduate should be able to

d.1. Manage time, prepare and give talks.

d.2. Solve problems and interact effectively with student & other people and in a small group .

d.3. Communicate and work as part of a team, recognizing the strengths, weaknesses, needs and sensitivities of others.

3- Course contents:

3.1 course structure:

- 15 weeks /semester
- **Semester** starts in 1st of May and in 1st of November

3.2 course admission and progression requirements:

Registration, progress requirements, and schedule of written exams are provided by the faculty post graduate by laws provided to all students through post graduate guide book

3.3 Course details/first semester

Course title	Topic	No. of credit hours	No of Credit points	prerequisite
CARD9001	compulsory courses in applied Medical Physiology*	7hs	21 points	-----

3.4 Details of teaching Course /wk/15wks first semester

Course code	Teaching courses	No. of credit hours/wk	No. of contact hours/wk	Remarks
CARD 9001	Formal lectures attended by the students	4hs	4hs	
	Tutorial	1h	2hs	
	Seminar	2h	4hs	

* The students should attend 75% of the activities related to the course. If the attendance less than 75%, the student should be notified and considered as forced withdrawal FW

*A log book is constructed to evaluate the attendance of each student for the different activities listed above by the main professor's advisory committee. The log book should be completed before the final comprehensive examination by one month.

Through out of the course different activities are recorded daily in the log book as follows; annex 1

Detailed contents of the course topics.

(Syllabus contents):

1. Theory & activities.

These listed topics below are covered through a mix of self learning and structured program (Formal lectures, tutorial, seminars and assignment) scheduled and previously announced in Medical Physiology department.

Detailed contents of the course topics. (Syllabus contents):

List of formal lectures, tutorials and seminars (Special topics).

1. Cell membrane Medical Physiology and its role in maintaining cell function.
2. Cardiovascular mechanic and hemodynamics.
3. Regulation of body fluid, volume, osmolarity, distribution and electrolyte balance.
4. Ion channel remodeling in cardiac hypertrophy & failure.
5. Nitric oxide, nitric oxide synthase & regulation of vascular tone.
6. Cerebrovascular system
7. Mechanical and electric events in the heart ,Pressure volume relationship.
8. Regional circulation cutaneous splenic skeletal muscles, normal values special features and regulation.
9. Cardiac arrhythmia and ECG interpretation.
10. Renal mechanisms controlling Blood volume, Blood pressure and
11. Ionic composition
12. Vascular endothelial control of microcirculation.
13. Medical Physiology studies the body's immune system and reactions to various diseases, allergens & infections.
14. Structure–function studies of nuclear receptors.
15. Myocardial & vascular remodeling .
16. Ion channel in vascular endothelium & smooth muscles.
17. Rhythmic excitation of the heart
18. PathoMedical Physiology of congestive heart failure.
19. Special features of Pulmonary circulation.
20. PathoMedical Physiology of hypertension.
21. Coronary circulation & ischemic heart disease.
22. Nitric oxide, nitric oxide synthase & regulation of vascular tone
23. Cardiac arrhythmia and ECG interpretation
24. PathoMedical Physiology of shock. -
25. Integrative cellular and molecular mechanisms of vessel remodeling, angiogenesis and atherosclerosis.
26. ECG changes following myocardial infarction
27. Trans-epithelial Transport .
28. Pulmonary Medical Physiology ,with special reference to its role in regulation of Acid base balance.
29. Pulmonary Circulation.
30. Blood Gases, Transport, gas concentration in different pathophysiological diseases .
31. Plasminogen system
32. Fibrin degradation product.

33. Platelets activation
34. Clinical evaluation of bleeding disorder
35. pathoMedical Physiology of fever.
36. Cardiopulmonary receptors and reflexes.
37. Left ventricular pressure volume loop in systolic and diastolic dysfunction.
38. Effects of gravity on cardiovascular system.
39. Functions of mechanoreceptors of the Atria.
40. Splanchnic circulation.
41. Cardiopulmonary receptors.
42. The cardio inhibitory reflexes.

4- Teaching and learning methods:

- 4.1 Illustrated lectures.
 - 4.2 Tutorial is scheduled and previously announced special topics from the curriculum are discussed in the tutorial.
 - 4.3 Assignment to be prepared by the graduate in one of the special topic taught.
 - 4.4 Seminars are scheduled and previously announced
 - 4.5 Fully equipped Medical library well stocked with books and journals related to Medical Physiology
 - 4.6 Faculty equipped with internet access.
- Each teaching method is designed to serve different educational goal, and together they provide an appropriate stimulating atmosphere for learning.

5- Student Assessment:

- 5.1. Anend semester written and oral examinations
- 5.2. The grades of the semester (Final qualified examination) is recorded in transcript for each student and the grades should not be less than C- or the student should repeat this examination.

6- Assessment schedule:

6.1. End Semester Final written qualifying examination	At the end of the semester (60% of the total mark) with at least 60% grade if less, The student repeat the written and the oral examination.
6.2. oral qualifying examination	At the end of the courses(40% of the total mark), After the written (if its evaluation is satisfactory) with grade 60% if less the student repeat only the oral exam

7- Weighing of assessments:

Grading system for End Semester written Exam:

Grade	%	Code	CGPA points
Excelent	95% or more	A	4.000

Very Good	90% to less than 95%	A-	3.666
	85% to less than 90%	B+	3.333
Good	80% to less than 85%	B	3.000
	75% to less than 80%	B-	2.666
Satisfactory	70% to less than 75%	C+	2.333
	65% to less than 70%	C	2.000
Failed	60% to less than 65%	C-	1,666
	55% to less than 60%	D+	1.333
	30% to less than 55%	D	1.000
	Less than 30%	F	0.000

Final comprehensive exam

Medical Physiology	Final written	Final oral	Total
Final comprehensive exam	90 (60%)	60 (40%)	150

List any formative only assessment:

Final semester examination: In the form of:

- **Written examination:** consists of one paper, three hours designed to evaluate understanding of the subject..
- **Oral examination:** each student is evaluated by at least 4 examiners,

8- List of references:

8.1. Essential books (Textbooks):

The following textbooks will be used in the course

1. Guyton &Hall textbook of Human Medical Physiology and Mechanisms of Disease.
2. Gannon (review of medical Medical Physiology).
3. Vander's human Medical Physiology.
4. L.S. Costanzo. Medical Physiology. 3rd edition. W.B. Saunders Company.
5. R.A.Rhoades and D.Bell. Medical Medical Physiology. Lippincott Williams & Wilkins , 3rd edition

8.2. Alternative textbooks:

6. Principle of Medical Physiology. Robert M.Bern.
7. PathoMedical Physiology. Biological basis of disease. Kathren L. Macance RN..
8. Human Medical Physiology from cell to system by: Lauralee Sherwood.
9. L.S.Costanzo. Medical Physiology. Board review series. Lippincott Williams & Wilkins.
10. C.H. Best and N.B. Taylor. physiological basis of medical practice. Lippincott Williams & Wilkins.

8.3. Periodicals, Web sites, etc:

- www.tebawy.5ucom.
- <http://bcs.whfreeman.com>.
- <http://www.bpsc.eud/sciencealliedhealth/humanMedicalPhysiologylinks.html>.
- <http://bio-alive.com/animations/MedicalPhysiology.htm>.

9- Other resources/ facilities required for teaching and learning to achieve the above ILOs:

- All facilities required for teaching are available.

10- We certify that all of the information required to deliver this course is contained in the above specifications and will be implemented.

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.....