



## إعتماد توصيف مقررات برنامج الدكتوراه فى الفسيولوجيا الطبية

نقر نحن الموقعون على هذا أدناه أن توصيف وثيقة البرنامج التعليمى لدرجة الدكتوراه فى الفسيولوجيا الطبية والمقررات الدراسية المكونة له قد تم وضعها بمعرفة الأقسام المعنية

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عميد الكلية

وكيل الكلية للدراسات العليا



## Peer Revision

Date of Revision	University	Reviewers
10/12/2011	Cairo	- Prof. Dawlat Salem
28/11/2011	Mansura	- Prof. Ahmad K. Mansur

# **Program Specification of Medical Doctorate Degree of Medical Physiology**

**Sohag University**

**Faculty of medicine**

## **A. Basic Information**

1. Program title: medical doctorate of Medical Physiology.
2. Program type: single
3. Faculty: Faculty of Medicine
4. Department: Medical Physiology
5. Coordinator :Dr. Ahmed Mostafa
6. Assistant Coordinator: assistant lecturer :Hoda Mostafa
7. External evaluator Prof. Saed Kamal Taha
8. Last date of program specifications approval: Faculty council No. "250", decree No. "1378" dated 28/12/2013.

## **B. Professional Information**

### **1. Program aims ;**

The aim of this program is to provide the postgraduate with advanced medical knowledge and skills essential for the mastery practice of medical physiology and necessary for further training and practice in field of medical physiology.

1. Recent scientific knowledge essential for mastery of practice of medical physiology according to the international standards.
2. Skills necessary for applying scientific methods in field of medical physiology.
3. Ethical principles related to practice in medical physiology.
4. Active participation in community need assessment and problem identification
5. Maintenance of learning ability necessary for continuous medical application
5. Upgrading research interests and abilities

### **2. Attributes of the postgraduate student:**

1. Efficient in carrying out the basics and advances in scientific research.
2. The continuous working to add new knowledge in the field of physiology.
3. Applying the analytical course and critical appraisal of the knowledge in physiology and related fields.
4. Merging the physiological knowledge with the other related knowledge with conclusion and developing the relationships in between them.
5. Showing a deep awareness with the ongoing problems, theories, and advanced sciences in the specialty of physiology.
6. Determination of the professional problems in the specialty of physiology and

creating solutions for them.

7. Efficient in carrying out the professional skills in medical physiology.
8. Using advanced suitable technologies which serves his practice.
9. Efficient communication and leadership of team work in his specialty.
10. Decision making through the available information.
11. Using the available resources efficiently and working to find new resources.
12. Awareness with his role in the development of the society and preserve environment.
13. Behaving in a way which reflects his credibility, accountability, and responsibility.
14. Keeping continuous self development and transfer his experiences and knowledge to others.

### **3. Intended learning outcomes (ILOs)**

#### **a. Knowledge and understanding**

By the end of the study of doctoral program in medical physiology the Graduate should be able to:

1. Mention the recent fundamental knowledge in the field of cell physiology
2. Mention the recent, fundamentals and basic knowledge in the field of physiology of body systems and their control in case of health and disease.
3. Tell Principles, methodologies, tools and ethics of scientific research.
4. Describe the principles and fundamentals of ethics and legal aspects of professional practice in the field of medical physiology
5. Say the principles and fundamentals of quality of professional practice in the field of medical physiology
6. Trace the knowledge of the impact of professional practice on the environment and the methods of environmental development and maintenance
7. Describe the recent advances in biostatistics and computer.

#### **Optional ILOS**

8. And describe recent fundamentals and basic knowledge's in molecular biology for further identification of cell physiology
9. Say recent fundamentals and basic knowledge's in genetics that help in more identification of cell physiology
10. Describe the recent , fundamentals and basic knowledge's in the field of organ transplant and – physiology of immunity
11. Mention The recent , fundamentals and basic changes that are muscular exercise associated in sport physiology field

#### **b. Intellectual skills**

By the end of the study of doctoral program in Medical Physiology. The Graduate should be able to:

1. Interpret ate physiological data information in the field of Medical Physiology and use it for evaluation of function of different body systems.
2. Conclude and calculate important physiologic values by physical laws and formula e.g. estimation of basal metabolic rate
3. Select from different diagnostic tools the one that can reach final solving problems in the field of medical physiology.

4. Conduct research studies that add to knowledge.
5. Formulate scientific papers in the area of Medical Physiology.
6. Plan to improve performance in the field of Medical Physiology.
7. Assess risks in professional practices in the field of Medical Physiology.
8. Make decision professionally in different professional contexts.
9. Create in the field of medical physiology.
10. Discuss scientific problems with administration based on discussion.
11. Appraise critically researches related to Medical Physiology.

**Optional ILOS**

12. Integrate the information about DNA structure and function, and cell physiology.
13. Link the genetics information and genetics bases to cell physiology in health and in disease.
14. Explain certain diseases on genetic bases.
15. Explain certain physiological reactions on immunological bases either in health or in disease.
16. Explain certain diseases on immunological bases.
17. Evaluate the physiology and efficiency of certain body systems e.g. circulatory system according to changes associated with sports practice.

**c. Professional and practical skills**

By the end of the study of doctoral program in medical physiology the Graduate should be able to:

1. Master of the basic and modern professional skills in handling, dissection of lab animals and isolation of certain organs.
2. Estimate vital variables in lab animals e.g. heart rate, blood pressure
3. Evaluate the physiology of each system clinically e.g. complete neurological examination for evaluation of CNS function
4. Estimate the level of certain substances e.g. hemoglobin levels, levels of hormones.
5. Use of Instrumental devices in evaluation of function and physiology of different body systems e.g. ECG, EMG, Audiometer.
6. Write & evaluate physiological reports
7. Evaluate and develop methods and tools existing in the area of medical physiology.
8. Use technological methods to serve the professional practice.
9. Train junior staff through continuous medical education programs.
10. Develop new methods, tools and ways of professional practice

**Optional ILOS**

11. Perform Practical study of DNA Structure genes and chromosomes.
12. Isolate genetic material
13. Practical study of immune reactions either macroscopically or microscopically
14. Study and Perform immune reactions in lab animals
15. Estimate physiological changes during muscular exercise e.g. excess respiratory quotient. and O<sub>2</sub> debt
16. Use the changes which are associated with sport practice in evaluation of physical fitness.

**d. General and transferable skill**

By the end of the study of doctoral program in medical physiology the Graduate should be able to:

1. present reports in seminars effectively
2. Use appropriate computer program packages.
3. Teach others and evaluate their performance.
4. Assess himself and identify his personal learning needs.
5. Use of different sources for information and knowledge.
6. Work coherently and successfully as a part of a team and team's leadership.
7. Manage scientific meetings according to the available time.

#### 4. Academic Standards:

Sohag Faculty of medicine adopted the general National Academic Reference Standards (NARS) provided by the national authority for quality assurance and accreditation of education (NAQAAE) for postgraduate programs. This was approved by the Faculty Council decree No.6854, in its session No.177 Dated: 18/5/2009. Based on these NARS; Academic Reference Standards (ARS) were suggested for this program. These ARS were revised by external evaluator and approved by the Faculty Council decree No. 7528, in its session No.191, dated: 15/3/2010. The adoption of NARS and the suggested ARS were approved by University council degree No 587, in its session No.60. dated 26-12-2011.

#### 5. Curriculum Structure and Contents

5.a- **Program duration:** 7 semesters (3.5 years).

5.b.i- No. of hours per week:

Clinical	Practical	Lectures	Subject
<u>First part:</u>			
	2	2	1- Computer & biostatistics
	2	2	2-Research Methodology
<u>Opt Optional courses: 2/4 of the following basic sciences</u>			
		4	-Molecular biology
		4	-Genetics
		4	-Immunity & organ trasplants
		4	-SPORT PHYSIOLOGY
<u>Second Part:</u>			
	12.5	7	physiology

code	Item	No	%
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		Compulsory	90	100
		Elective	0	0
		Optional	0	0
b.iii	credit hours of basic sciences courses		8	8.8
b.iv	credit hours of courses of social sciences and humanities		0	0
b.v	credit hours of specialized courses:		53	58.9
b.vi	credit hours of other course		6	6.6
b.vii	Practical/Field Training		8	8.9%
b.viii	Program Levels (in credit-hours system):			
	Level 1: 1 <sup>st</sup> part		15	16.7
	Level 2: 2 <sup>nd</sup> Part		53	58.9
	Level 3: Thesis		15	16.7

**6. Program courses ; 2 compulsory +2 optional**

**61- Level/Year of Program...first part Semester...1.....**

**a. Compulsory; two courses**

	No. of hours /week				
	clinical	Lab.	Lect.		
a7,b1,c7,c8 ,d2,		2	2	3	BioStatistics & Computer
A3,a4,b4,b5,b9, b11,c1,c10, d5,d6		2	2	3	Research Methodology

**b- Optional –two courses of four**

	No. of hours /week				
	clinical	Lab.	Lect.		
a8,b12,c12,d1,d4,d5,d6			4	4	Molecular biology
a9,b13,b14,c13,d1,d4,d5, d6			4	4	Genetics
a10,bi5,b16,c15,c16,d1,d4,d5 ,d6			4	4	Organ transplantation& immunity
a11,b17,c15,c16,d1,d4,d5,d6			4	4	SPORT PHYSIOLOGY

**Second part: one compulsory**

	No. of hours /week				
	Clinical.	Lab.	Lect.		

a1,2,5,6,b1,2,3,6,7,8,9,10 c1,2,3,4,5,6,7,8,9,10,11,14 d1,3,4,5,6,7		<b>12.5</b>	<b>7</b>	<b>53</b>	physiology
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## 7. Program Admission Requirements

### I- General Requirements.

- 1 Candidate should have either MBBch degree from any Egyptian Faculty of Medicine or Equivalent Degree from Medical Schools abroad approved by the ministry of high Education.
- 2 Candidate should know how to speak & write English well
- 3 Candidate should have computer skills.
- 4 Follow postgraduate bylaw Regulatory rules of Sohag Faculty of Medicine approved by the ministerial decree No. (44), dated 6/1/2010.

### II- Specific Requirements

- 1 Master degree in medical physiology with at least "Good Rank".

## 8. Regulations for Progression and Program Completion

Duration of program is 90 credit hours ( $\geq 7$  semesters  $\geq 3.5$  years), starting from registration till acceptance of the thesis; divided to:

### First Part: (15 Credit hours $\geq 6$ months $\geq 1$ semester):

- 1 Program-related basic science, Research Methodology, Ethics & medical reports, Biostatistics and computer.
- 2 At least six months after registration should pass before the student can ask for examination in the 1<sup>st</sup> part.
- 3 Two sets of exams: 1st in October — 2nd in April after fulfillment of the credit hours.
- 4 At least 60% of the written exam and 60% of the total oral and practical/clinical is needed to pass in each course.
- 5 For the student to pass the first part exam, a score of at least 60% (Level D) in each course is needed.
- 6 Those who fail in one course need to re-exam it only.
- 7 GPA of  $\geq 1.3$  is needed to pass this level (semester).

### Second Part: (53 Credit hours $\geq 24$ months= 4 semesters):

- 1 Program related specialized science of physiology courses. At least 24 months after passing the 1<sup>st</sup> part should pass before the student can ask for examination in the 2<sup>nd</sup> part.
  - Fulfillment of the requirements in each course as described in the template and registered in the log book (8 Credit hours; with obtaining  $\geq 75\%$  of its mark) is a prerequisite for candidates to be assessed and undertake part 1 and part 2 examinations; the credit hours of the logbook are calculated as following:
    - Each Cr. Hr.= 60 working Hrs.
    - Logbook= 8 Cr. Hr. X 60 working Hrs = 480 Working Hrs.
    - Collection of working Hrs. is as following:

Hrs	Activity	
6	اجتماع علمي موسع	Grand rounds
12 day	دورات تدريبية	Training courses
12day 18day	حضور مؤتمرات علمية داخلي خارجية	Conference attendance
6	حضور مناقشات رسائل	Thesis discussion
12day	حضور ورش عمل	Workshops
6	ندوة الدوريات الحديثة	Journal club
6	لقاء علمي موسع	Seminars
6	ندوة تحليل المخاطر المرضية أو الوفاة	Morbidity and Mortality conference
6	برنامج التعليم الذاتي	Self education program

- 1 Two sets of exams: 1st in October - 2nd in April.
- 2 At least 60% of the written exam is needed to be admitted to the oral and practical exams.
- 3 4 times of oral and practical exams are allowed before the student has to re-attend the written exam.

**Third Part (Thesis) (15 Credit hours =24-48 months=4-8 semesters):**

- Documentation of the subject should not be delayed for > 1.5 years after registration.
- Could start after registration and should be completed, defended and accepted after passing the 2nd part final examination, after passing of at least 24 months after documentation of the subject of the thesis and after publishing of at least one paper from the thesis in a specialized peer-reviewed journal.
- Accepting the thesis is enough to pass this part.

**9. Methods of student assessments:**

Method of assessment	weight	The assessed ILOs
1-Research assignment		- General transferable skills, intellectual skills
2-Written Exams: -Short essay: 40% -structured questions: 25% -MCQs: 20% -Commentary, Problem solving: 15%	50 %	- Knowledge - Knowledge - Knowledge, intellectual skills - Intellectual skills, General transferable skills
3-OSPE		-Practical skills, intellectual skills, general transferable skills
4-Structured Oral Exams		- Knowledge, Intellectual skills, General

		transferable skills
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**Assessment schedule:**

Part I

- Biostatistics & Computer: Written Exam (2 hours) + Structured oral Exam+ OSPE
- Research Methodology: Written Exam (2 hours) + Structured oral Exam+ OSPE
- Special optional:

First optional: written Exam (3 hours) + structured oral Exam.

Second optional: written Exam (3 hours) + structured oral Exam.

Part II:

- Medical Physiology: Two written Exam (3 hours for each) + OSPE + Structured oral Exam.

**10. Evaluation of Program**

Sample	Tool	Evaluator
2	Questionnaire	1- Senior students
3	Questionnaire	2- Alumni
35	Questionnaire	3- Stakeholders ( Employers)
1 5	Report	4-External Evaluator(s) (External Examiner(s))
		5- Other

# COURSE SPECIFICATION OF COMPUTER AND BIostatISTICS IN MD OF MEDICAL PHYSIOLOGY

**Sohag University**

**Faculty of Medicine**

1. Program on which the course is given; MD
2. Major or minor element of program: Minor.
3. Department offering the program: Department of Medical Physiology
4. Departments offering the courses: Department of Community Medicine and public health
5. Academic year /Level: 1st Part.
6. Date of specification approval: Faculty council No. "250", decree No. "1378" dated 28/12/2013

**A. Basic Information**

**Title:** Course specification of computer and biostatistics in MD program of Medical Physiology.

**Code:** COM 0517-300

**Total hours:**

Credit	Total	Practical	Lecture	Title
3	60	30	30	Applied biostatistics

**B. Professional Information**

**1. Overall Aims of Course**

- To use precisely medical biostatistics and computer programs

**2. Intended Learning Outcomes of Courses (ILOs)**

**a) Knowledge and understanding:**

By the end of the course, the student is expected to be able to:

- a1. Define different programs of analysis of data and statistical packages
- a2. Define the recent advances of sources of data and methods of collection.
- a3. Summarize data, construct tables and graphs
- a4. Calculate measures of central tendency and measures of dispersion
- a5. Describe the normal curves and its uses
- a6. Illustrate selected tests of significance and the inferences obtained from such tests
- a7. Illustrate selected tests of significance for parametric and non parametric inferences
- a8. Identify factor analysis and discrimination analysis

**b) Intellectual Skills**

By the end of the course, the student is expected to be allowed to:

1. understand how to collect and verify data from different sources
2. Interpret data to diagnose prevalent problems in medical physiology

**c) Professional and Practical Skills:**

By the end of the course, the student is expected to practice the following:

1. Perform recent advanced technological methods in collection, analysis and interpretation of data and in management of prevalent problems in medical physiology

**d) General and Transferable Skills:**

By the end of the course, the student is expected to be able to:

1. Use appropriate computer program packages.
2. Use of different sources for information and knowledge about biostatistics.

**3. Contents**

Tutorial/ Practical	Lecture	No. of hours	Topic
3	3	6	Recent advances in collection, analysis and interpretation of data
3	3	6	-Details of Tests of significance: Proportion test
3	3	6	Chi-square test
3	3	6	Student T test
3	3	6	Paired T test
2	2	4	-Correlation
3	3	6	-Regression
2	2	4	-ANOVA test
3	3	6	-Discrimination analysis
2	2	4	Factor analysis
3	3	6	- parametric and non parametric tests
30	30	60	Total
1	2	3	Credit

**4. 4- Teaching and Learning Methods**

- 4.1- Lectures
- 4.3- Computer search assignments
- 4.4- Computer application

**5. 5-Student Assessment Methods**

Method of assessment	The assessed ILOs
5.1- Observation of attendance and absenteeism.	- General transferable skills, intellectual skills
5.2-Written Exam: -Short essay: 40% -structured questions: 25% -MCQs: 20% -Commentary, Problem solving: 15%	- Knowledge - Knowledge - Knowledge, intellectual skills - Intellectual skills, General transferable skills,

5.3-Structured Oral Exam	- Knowledge, Intellectual skills, General transferable skills
5.4 Computer search assignment	-General transferable skills, intellectual skills

### Assessment Schedule

Assessment 1.....	Final written exam	Week: 24
Assessment 2.....	Final Structured Oral Exam	Week: 24
Assessment 3	Attendance and absenteeism throughout the course	
Assessment 4	Computer search assignment performance throughout the course	

### Weighting of Assessments

Final-term written examination	50	%
Final Structured Oral Exam	50	%
Total	100	%

**Formative only assessments: attendance and absenteeism and Computer search assignments performance.**

## 6. 6- List of References

### 6.1- Essential Books (Text Books)

1-Maxy-Rosenau Public health and preventive medicine, Robert B, Wallace, 14<sup>th</sup> edition (1998), Prentice – Hall International Inc.

### 6.2- Recommended Books

1- Dimensions of Community Health, Dean F. Miller, Price.W.C. Brown Publishers, 1984

2- Short Textbook of preventive and social Medicine,Prabhakara, Jaypee Brothers Publishers 2003

3- Epidemiology in medical practice,David James Purslove Barker, C. Cooper, Geoffrey Arthur Rose, 5<sup>th</sup> edition. Churchill Livingstone.Medical Division of Pearson Professional Limited, 1998.

### 6.3- Periodicals, Web Sites, etc

1-American Journal of Epidemiology

2-British Journal of Epidemiology and Community Health

3- WWW. CDC and WHO sites

## 7. Facilities Required for Teaching and Learning:

1. Adequate infrastructure includes teaching places (teaching class, teaching halls, and teaching laboratory) comfortable desks good source of aeration, bathrooms, good illumination and safety and security tools.
2. Teaching tools: includes screens, computers CD( r/w) data shows ,projectors ,flip charts, white boards, video players, digital videos
3. Computer programs: for designing and evaluating MCQS.

**Course Coordinator:** Dr/Ahmed Fathy Hammed

**Department:** Prof/Eman Abd El-Baset Mohammed

**Date:** 18/12/2011, **Revised:**1/9/2012, **Revised:**1/12/2013

# COURSE SPECIFICATION OF RESEARCH AND METHODOLOGY IN MD OF MEDICAL PHYSIOLOGY

**Sohag University**

**Faculty of Medicine**

1. Program on which the course is given; MD
2. Major or minor element of program: Minor.
3. Department offering the program: Department of medical physiology
4. Departments offering the courses: Department of Community Medicine and public health
5. Academic year /Level: 1st Part.
6. Date of specification approval: Faculty council No. "250", decree No. "1378" dated 28/12/2013

## **A. Basic Information**

**Title:** Course specification of research and methodology in MD program of medical physiology.

**Code:** COM 0517-300

**Total hours:**

<b>Credit</b>	<b>Total</b>	<b>Practical</b>	<b>Lecture</b>	<b>Title</b>
<b>3</b>	<b>60</b>	<b>30</b>	<b>30</b>	Research methods

## **B. Professional Information**

### **1. Overall Aims of Course**

- To influence the students to adopt an analytical thinking for evidence based medicine
- To use precisely the research methodology in researches

### **2. Intended Learning Outcomes of Courses (ILOs)**

#### **a) Knowledge and understanding:**

By the end of the course, the student is expected to be able to:

- a1. Define the recent advances of screening tests pertinent to selected diseases and the at-risk approach in the application of screening tests.
- a2. Explain the usefulness of screening tests, and calculate sensitivity, specificity, and predictive values.
- a3. Describe the study design, uses, and limitations.
- a4. Mention the recent advances of principles, methodologies, tools and ethics of scientific research.
- a5. Explain the strategies and design of researches.
- a6. Describe bias and confounding.
- a7. Describe sampling techniques and list advantages of sampling
- a8. Identify principles of evidence based medicine.

## b) Intellectual Skills

By the end of the course, the student is expected to be able to:

1. Conduct research studies that add to knowledge.
2. Formulate scientific papers in the area of medical physiology
3. Innovate and create researches to find solutions to prevalent problems related to medical physiology
4. Criticize researches related to medical physiology

## b) Professional and Practical Skills:

By the end of the course, the student is expected to be able to:

1. Master the basic and modern professional skills in conducting researches in the area of medical physiology.
2. Design new methods, tools and ways of conducting researches. .

## c) General and Transferable Skills:

By the end of the course, the student is expected to be able to:

1. Use of different sources for information and knowledge to serve research.
2. Work coherently and successfully as a part of a team and team's leadership in conducting researches and field studies.

## 3. Contents

Tutorial/ Practical	Lecture	No. of hours	Topic
4	4	8	Details of epidemiological studies (case control, cohort and cross sectional )
3	3	6	Clinical trials, Quasi experimental study
3	3	6	Bias and errors
3	3	6	Setting a hypothesis
3	3	6	Recent advances in screening
2	2	4	-0 Evidence – based Medicine: Concept and examples
2	2	4	Applicability
2	2	4	Scientific writing: A protocol
2	2	4	A curriculum
1	1	2	Setting an objective
1	1	2	Critical thinking
4	4	8	Formulation of papers
30	30	60	Total
1	2	3	Credit hours

## 4. Teaching and Learning Methods

4.1- Lectures.

4.2- Computer search assignments

## 5. Student Assessment Methods

Method of assessment	The assessed ILOs
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5.1- Observation of attendance and absenteeism.	- General transferable skills, intellectual skills
5.2-Written Exam: -Short essay: 40% -structured questions: 25% -MCQs: 20% -Commentary, Problem solving: 15%	- Knowledge - Knowledge - Knowledge, intellectual skills - Intellectual skills, General transferable skills,
5.3-Structured Oral Exam	- Knowledge, Intellectual skills, General transferable skills
5.4 Computer search assignment	-General transferable skills, intellectual skills

### Assessment Schedule

Assessment 1	Final written exam	Week: 24
Assessment 2	Final Structured Oral Exam	Week: 24
Assessment 3	Attendance and absenteeism throughout the course	
Assessment 4	Computer search assignment performance throughout the course	

### Weighting of Assessments

Final-term written examination	50	%
Final Structured Oral Exam	50	%
Total	100	%

**Any formative only assessments** Attendance and absenteeism throughout the course  
Computer search assignment performance throughout the course

## 6. List of References

### 6.1- Essential Books (Text Books)

1-Maxy-Rosenau Public health and preventive medicine, Robert B, Wallace, 14<sup>th</sup> edition (1998), Prentice – Hall International Inc..

### 6.2- Recommended Books

- 1- Dimensions of Community Health, Dean F. Miller, Price.W.C. Brown Publishers, 1984
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- 3- Epidemiology in medical practice,David James Purslove Barker, C. Cooper, Geoffrey Arthur Rose, 5<sup>th</sup> edition. Churchill Livingstone.Medical Division of Pearson Professional Limited, 1998..

### 6.3- Periodicals, Web Sites, etc

- 1-American Journal of Epidemiology
- 2-British Journal of Epidemiology and Community Health
- 3- WWW. CDC and WHO sites

## 7. Facilities Required for Teaching and Learning:

1. Adequate infrastructure includes teaching places(teaching class ,teaching halls ,teaching laboratory)comfortable desks good source of aeration ,bathrooms ,good illumination and safety and security tools.
2. Teaching tools: includes screens, computers CD( r/w) data shows ,projectors ,flip charts, white boards, video players, digital videos
3. Computer programs: for designing and evaluating MCQS.

**Course Coordinator: Dr/Ahmed Fathy Hammed**

**Head of Department: Prof/Eman Abd El-Baset Mohammed**

**Date: 18/12/2011, Revised:1/9/2012, Revised:1/12/2013**

# COURSE SPECIFICATION OF MOLECULAR BIOLOGY IN MD OF MEDICAL PHYSIOLOGY

Sohag University

Faculty of Medicine

1. Program on which the course is given; MD
2. Major or minor element of program: Minor.
3. Department offering the program: Department of Medical Physiology
4. Departments offering the courses: Department of Medical Biochemistry.
5. Academic year /Level: 1st Part.
6. Date of specification approval: Faculty council No. "250", decree No. "1378" dated 28/12/2013

## A. Basic Information

**Title:** Course specification of Molecular Biology in MD Program of Medical Physiology.

**Code:** BIO 0517-300

**Total hours**

CREDIT	TOTAL	PRACTICAL	LECTURES	Title
4	60	-----	60	Molecular biology

## B. Professional Information

### 1. Overall Aims of Course

The aim of this course is to provide the postgraduate with advanced medical knowledge and skills essential for the mastery practice of medical physiology and necessary for further training and practice in field of medical physiology.

- 1- Recent scientific knowledge essential for mastery of practice of medical physiology according to the international standards.
- 2- Skills necessary for applying scientific methods in field of medical physiology.

### 2. Intended Learning Outcomes of Courses (ILOs)

#### a) **Knowledge and understanding:**

By the end of the course the graduate should be able to:

1. Mention and describe recent fundamentals and basic knowledge about nucleic acid types ,structure ,function, abnormalities , techniques for separation ,mutations and gene therapy for further identification of cell physiology

#### b) **Intellectual Skills**

By the end of the course, , the graduate should be able to

1. Integrate the information about DNA structure ,function, mutations ,and cell physiology in health and in disease

#### c) **Professional and Practical Skills:**

By the end of the course, the graduate should be able to:

1. Perform Practical study of DNA Structure, ,genes ,and chromosomes,
2. Apply techniques for analysis and separation of DNA.

**d) General and Transferable Skills:**

By the end of the course, the graduate should be able to:

1. Present reports in seminars effectively
2. Use appropriate computer program packages.
3. Teach others and evaluate their performance.
4. Assess himself and identify his personal learning
5. Use of different sources for information and knowledge.
6. Work coherently and successfully as a part of a team and team's leadership.
7. Manage scientific meetings according to the available time.

**8. Contents**

Practical	Lecture	No. of hours	Topic
	4	4	1-Basic structure of Nucleic acids & nucleotides
	2	2	2-Genetic code
	6	6	3- Synthesis of RNA & its types
	6	6	4-Control of genetic function & biochemical activity in cells
	6	6	5-Chromosomal structure
	6	6	6- Chromosomal disorders
	6	6	7- Genetic Engineering
	6	6	8-Human cloning
	6	6	9-Gene therapy
	6	6	10-Mutation & Ontogenesis and cancer
	6	6	11-Technique utilized in analysis of DNA &RNA
	60	60	Total
	4	4	Total credit

**4. Teaching and Learning Methods**

4.1- Lectures

4.2- Practical sessions

**5. Student Assessment Methods**

Method of assessment	The assessed ILOs
5.1- Observation of attendance and absenteeism.	- General transferable skills, intellectual skills
5.3-Written Exam: -Short essay: 40% -structured questions: 25% -MCQs: 20% -Commentary, Problem solving: 15%	- Knowledge - Knowledge - Knowledge, intellectual skills - Intellectual skills, General transferable skills,
5.4-Structured Oral Exam	- Knowledge, Intellectual skills, General transferable skills

5.5-OSPE	-Practical skills, intellectual skills General transferable skills
5.6 Computer search assignment	-General transferable skills, intellectual skills

### Assessment Schedule

Assessment of the candidate is at the end of the course ( 1 <sup>st</sup> part exam)		
Assessment 1	Final written exam (1 paper)	week 24
Assessment 2	Final Structured Oral Exam	week 24
Assessment 3	Final OSPE	week 24

### Weighting of Assessments

Final-term written examination	50	%
Structured Oral Exam	30	%
OSPE	20	%
Total	100	%

Formative only assessments: essay, simple research, Attendance and absenteeism

## 6. List of References

### 6.1- Essential Books (Text Books)

- a Text book of medical biochemistry with clinical Correlations, Thomas M. Devlin, 7th edition, John Wiley & Sons, Incorporated, 2010.
- b Harper's Biochemistry, Robert K. Murray, Harold A. Harper, Appleton & Lange, 2000

### 6.2- Recommended Books

- a Lectures notes on clinical biochemistry, L. Lionel Gordon Whitby, I. Iain Walter Percy-Robb, A. Alistair Fairley Smith, Blackwell, 1975
- b Lippincott's Illustrated Reviews: Biochemistry, Fifth Ed. and Biochemistry Map (Medmaps) Bundle, Richard A. Harvey, Denise R. Ferrier, Saeid Karandish, Lippincott Williams & Wilkins, 2010 .

### 6.3- Periodicals, Web Sites, etc

<http://www.ncbi.nlm.gov/>  
<http://www.vlib.org/>  
[www.genome.ad.jp/kegg/regulation.](http://www.genome.ad.jp/kegg/regulation)

1. Findarticle.com
2. Freemedicaljournals.com

## 7. Facilities Required for Teaching and Learning:

- 1 -Adequate infrastructure includes teaching places(teaching class ,teaching halls ,teaching laboratory)comfortable desks good source of aeration ,bathrooms ,good illumination and safety and security tools
- 2 -Teaching tools: includes screens, computers cd( r/w) data shows ,projectors ,flip charts, white boards, video players, digital videos
- 3 -Computer programs: for designing and evaluating MCQS.

**Course Coordinator:** Dr. Reda Salah Yuosef

**Head of Department:** Dr. Nagwa said Ahmed

**Date:** 18/12/2011, **Revised:**1/9/2012, **Revised:**1/12/2013

**COURSE SPECIFICATION OF GENITICS IN MD PROGRAM OF Medical  
PHYSIOLOGY**

**Sohag University**

**Faculty of Medicine**

1. Program on which the course is given; MD
2. Major or minor element of program: Minor.
3. Department offering the program: Department of Medical Physiology
4. Departments offering the courses: Department of Biochemistry.
5. Academic year /Level: 1st Part.
6. Date of specification approval: Faculty council No. "250", decree No. "1378" dated 28/12/2013

**A Basic Information**

**Title:** course specification of Genetics in MD Program of Medical Physiology

**Code:** BIO 0517-300

**Total Hours:**

CREDIT	TOTAL	PRACTICAL	LECTURES
4	60	-----	60

**B Professional Information**

**1. Overall Aims of Course**

The aim of this course is to provide the postgraduate with advanced medical knowledge and skills essential for the mastery practice of medical physiology and necessary for further training and practice in field of medical physiology.

1-Recent scientific knowledge essential for mastery of practice of medical physiology according to the international standards.

2-Skills necessary for applying scientific methods in field of medical physiology.

**2. Intended Learning Outcomes of Courses (ILOs)**

**a) Knowledge and understanding:**

By the end of the course the graduate should be able to:

1. Mention and describe recent fundamentals and basic knowledge's about nucleic acid , types ,structure ,function ,techniques for separation .
2. Discuss genes ,genetic code, genetic control on physical and chemical character of the cell for further identification of cell physiology
3. Describe Genetic system and cell reproduction
4. Discuss Mutations ,oncogenes and cancer

**b) Intellectual Skills**

By the end of the course the graduate should be able to:

1. Link the genetics information and genetics bases to cell physiology in health and in disease
2. Explain certain diseases on genetic bases

**c) Professional and Practical Skills**

By the end of the course the graduate should be able to:

1. Perform Practical study of DNA Structure „genes ,and chromosomes
2. Apply techniques for analysis and separation of DNA.

**d) General and Transferable Skills:**

By the end of the course the graduate should be able to:

1. Present reports in seminars effectively
2. Assess himself and identify his personal learning
3. Use of different sources for information and knowledge.
4. Work coherently and successfully as a part of a team and team's leadership.

**5. Contents**

<b>Tutorial/ Practical</b>	<b>Lecture</b>	<b>No. of hours</b>	<b>Topics</b>
	4	4	1-Basic structure of Nucleic acids & nucleotides
	2	2	2-Genetic code
	6	6	3- Synthesis of RNA & its types
	6	6	4-Control of genetic function & biochemical activity in cells
	6	6	5-Chromosomal structure
	6	6	6- Chromosomal disorders
	6	6	7- Genetic Engineering
	6	6	8-Human cloning
	6	6	9-Gene therapy
	6	6	10-Mutation & Oncogenes and cancer
	6	6	11-Technique utilized in analysis of DNA &RNA
	60	60	Total
	4	4	Total credit

**4. Teaching and Learning Methods**

- 4.1- Lectures
- 4.2- Practical sessions
- 4.3-research assignment
- 4.4-Short essay
- 4.5-Attending and participating in scientific conferences, workshops  
And thesis discussion to acquire general transferable skills

**5. Student Assessment Methods**

Method of assessment	The assessed ILOs
5.1- Observation of attendance and absenteeism.	- General transferable skills, intellectual skills

5.2-Written Exam: -Short essay: 40% -structured questions: 25% -MCQs: 20% -Commentary, Problem solving: 15%	- Knowledge - Knowledge - Knowledge, intellectual skills - Intellectual skills, General transferable skills,
5.3-Structured Oral Exam	- Knowledge, Intellectual skills, General transferable skills
5.4-OSPE	-Practical skills, intellectual skills

### Assessment Schedule

Assessment of the candidate is at the end of the course

Assessment 1	Final written exam (1 paper)	week 24
Assessment 2	Final Structured Oral Exam	week 24
Assessment 3	Final OSPE	week 24

### Weighting of Assessments

Final-term written examination	50%
Structured Oral Exam	30%
OSPE	20 %
Total	100%

Formative only assessments: essay, simple research, attendance and absenteeism

## 6. List of References

### 6.1- Essential Books (Text Books)

a - Text book of medical biochemistry with clinical Correlations, Thomas M. Devlin, 7th edition, John Wiley & Sons, Incorporated, 2010.

### 6.2- Recommended Books

a- Lectures notes on clinical biochemistry, L. Lionel Gordon Whitby, I. Iain Walter Percy-Robb, A. Alistair Fairley Smith, Blackwell, 1975.

b- Lippincott's Illustrated Reviews: Biochemistry, Fifth Ed. and Biochemistry Map (Medmaps) Bundle, Richard A. Harvey, Denise R. Ferrier, Saeid Karandish, Lippincott Williams & Wilkins, 2010 .

### 6.3- Periodicals, Web Sites, etc

<http://www.ncbi.nlm.gov/>  
<http://www.vlib.org/>  
[www.genome.ad.jp/kegg/regulation](http://www.genome.ad.jp/kegg/regulation).  
 Findarticle.com  
 Freemedicaljournals.com

## 7. Facilities Required for Teaching and Learning:

- Adequate infrastructure includes teaching places(teaching class ,teaching halls ,teaching laboratory)comfortable desks good source of aeration ,bathrooms ,good illumination and safety and security tools

9. Teaching tools: includes screens, computers CD( r/w) data shows ,projectors ,flip charts, white boards, video players, digital videos
10. Computer programs: for designing and evaluating MCQS.

**Course Coordinator:** Dr. Reda Salf Yusef

**Head of Department:** Dr. Nagwa Said

**Date:** 18/12/2011, **Revised:**1/9/2012, **Revised:**1/12/2013

**COURSE SPECIFICATION OF ORGAN TRANSPLANT AND IMMUNITY IN  
MD PROGRAM OF MEDICAL PHYSIOLOGY**

**Sohag University**

**Faculty of Medicine**

1. Program on which the course is given; MD
2. Major or minor element of program: Minor.
3. Department offering the program: Department of Medical Physiology
4. Departments offering the courses: Department of Medical Microbiology and Immunology.
5. Academic year /Level: 1st Part.
6. Date of specification approval: Faculty council No. "250", decree No. "1378" dated 28/12/2013

**A. Basic Information**

**Title:** Course specification of organ transplant and immunity in MD Program of Medical Physiology  
**Code:** MIC 0517-300

Credit	TOTAL	PRACTICAL	LECTURS	Title:
4	60	-----	60	organ transplant and immunity

**B. Professional Information**

**1. Overall Aims of Course**

The aim of this course is to provide the postgraduate with advanced medical knowledge and skills essential for the mastery practice of medical physiology and necessary for further training and practice in field of medical physiology.

- 1-Recent scientific knowledge essential for mastery of practice of medical physiology according to the international standards.
- 2-Skills necessary for applying scientific methods in field of medical physiology.

**2. Intended Learning Outcomes of Courses (ILOs)**

**a) Knowledge and understanding:**

By the end of the course, the graduate should be able to:

1. Describe the recent , fundamentals and basic knowledge's in immunity types, component of immune response
2. Discuss allergy and hypersensitivity
3. Discuss immunity in pregnancy
4. Mention Immune deficiency syndrome

5. Describe immune response in organ transplant

**b)Intellectual Skills**

By the end of the course, the graduate should be able to:

1. Explain certain physiological reactions on immunological bases either in health or in disease
2. Explain certain diseases on immunological bases

**c)Professional and Practical Skills:**

By the end of the course, the graduate should be able to

1. Practical identification of immune cells of different types
2. Practical study of immune reactions either macroscopically or microscopically
3. Study and Perform immune reactions in lab animals
4. Collect samples of different types

**d)General and Transferable Skills:**

By the end of the course, the graduate should be able to:

1. Present reports in seminars effectively
2. Assess himself and identify his personal learning
3. Use of different sources for information and knowledge.
4. Manage scientific meetings according to the available time.

**3- Contents**

3.

Practical	Lecture	No. of hours	Topics
---	3	3	1. Overview of the Immune System (Historical Perspective, Innate Immunity, Adaptive Immunity, Comparative Immunity, Immune Dysfunction and Its Consequences).
---	3	3	2. Cells and Organs of the Immune System (Hematopoietic, Cells of the Immune System, Organs of the Immune System (structure &function), lymphocyte Recirculation).
---	3	3	3. Innate Immune Response (Mechanical and chemical barriers, Pattern recognition receptors, Phagocytosis, acute phase response, Leukocyte Migration and Inflammation).
---	3	3	4. Cell-Adhesion Molecules, Chemokines —Key Mediators of Inflammation.
---	3	3	5. Antigens (Immunogenicity Versus Antigenicity, Factors That Influence Immunogenicity, Epitopes, Haptens, Pattern-Recognition Receptors, Heterophil antigens, Adjuvants).
---	3	3	6. Antibodies: Structure and Function (Immunoglobulin Fine Structure, Antibody-Mediated Effector Functions, Antibody Classes and Biological Activities, Antigenic Determinants on Immunoglobulins, The B-Cell Receptor, The Immunoglobulin Superfamily,

			Monoclonal Antibodies).
---	3	3	8. Major Histocompatibility Complex (General Organization and Inheritance of the MHC, MHC Molecules and Genes, Detailed Genomic Map of MHC Genes, Cellular
---	3	3	9-Distribution of MHC Molecules, Regulation of MHC Expression, MHC and Immune Responsiveness, MHC and Disease Susceptibility )
---	3	3	10. Antigen Processing and Presentation (Antigen-Presenting Cells, Self-MHC Restriction of T Cells, Endogenous Antigens: The Cytosolic Pathway, Exogenous Antigens: The Endocytic Pathway, Presentation of Nonpeptide Antigens).
---	2	2	11. T-Cell Receptor ( $\alpha\beta$ and $\gamma\delta$ T-Cell Receptors: Structure and Roles, Organization and Rearrangement of TCR Genes, T-Cell Receptor Complex: TCR-CD3, T-Cell Accessory Membrane Molecules, Three-Dimensional Structures of TCR-Peptide- MHC Complexes).
---	2	2	12. T-Cell Maturation, Activation, and Differentiation (T-Cell Maturation and the Thymus, Thymic Selection of the T-Cell Repertoire, TH-Cell Activation,
---	2	2	T-Cell Differentiation, Cell Death and T-Cell Populations, Peripheral $\gamma\delta$ T-Cells. Antigen-Presenting Cells).
---	2	2	13. B-Cell Generation, Activation, and Differentiation (B-Cell Maturation, B-Cell Activation and Proliferation, Regulation of the Immune Effector Response).
---	2	2	14. The Complement System (The Functions of Complement, The Complement Components, Complement Activation, Regulation of the Complement System, Biological Consequences of Complement Activation, Complement Deficiencies).
---	2	2	15. Cytokines (Properties of Cytokines, Cytokine Receptors, Cytokine Antagonists, Cytokine Secretion by TH1 and TH2 Subsets, Cytokine-Related Diseases, Therapeutic Uses of Cytokines and Their Receptors, Cytokines in Hematopoiesis).
---	2	2	16. Cell-Mediated Effector Responses (Effector Responses, General Properties of Effector T Cells, Cytotoxic T Cells, Natural Killer Cells, Antibody-Dependent Cell-Mediated Cytotoxicity).
---	2	2	17-Hypersensitivity
---	2	2	18-Autoimmune diseases
---	2	2	19 immunodeficiency

---	2	2	20-tumor immunology
	2	2	21-transplantation immunology Solid organ transplant-mechanism and type of graft rejection-immunosuppressive drugs
	3	3	<b>Antigen –antibody reactions</b>
			-1 Agglutination tests
			-2 Precipitation tests
			-3 Complement fixation test
			-4 Immunofluorescence
			-5 ELIZA-RIE
			-6 Flowcytometry
	2	2	<b>Assessment of immune competence</b>
			-7 Assessment of T-cell competence
			-8 Assessment of B-cell competence
			-9 Assessment of the complement
			-10 Assessment of phagocyte function
			-11 HLA typing
	60	60	Total
	4	4	Total credit

#### 4. Teaching and Learning Methods

4.1- Lectures

4.2- Practical sessions

4.5-Attending and participating in scientific conferences, workshops and thesis discussion to acquire general transferable skills

#### 5. Student Assessment Methods

Method of assessment	The assessed ILOs
5.1- Observation of attendance and absenteeism.	- General transferable skills, intellectual skills
5.2-Written Exam: -Short essay: 40% -structured questions: 25% -MCQs: 20% -Commentary, Problem solving: 15%	- Knowledge - Knowledge - Knowledge, intellectual skills - Intellectual skills, General transferable skills,
5.3-Structured Oral Exam	- Knowledge, Intellectual skills, General transferable skills

#### Assessment Schedule

Assessment of the candidate is at the end of the course ( 1<sup>st</sup> part exam)

Assessment 1 Final written exam (1 paper) week 24

Assessment 2 Final Structured Oral Exam week 24

#### Weighting of Assessments

Final-term written examination 50%

Structured Oral Exam 50%

Total 100 %

Formative only assessments: attendance and absenteeism

#### 6. List of References

### **6.1- Essential Books (Text Books)**

1. Bergey's Manual of Systematic Bacteriology, Don J. Brenner, Noel R. Krieg, George M. Garrity, James T. Staley, 2nd edition, Springer, 2007.

2. Immunology Lippincott's Illustrated Reviews Series, Roger Melvold, Susan Viselli, Carl Valtenbaugh, 2nd edition, Lippincott Williams & Wilkins, 2012.

3. Jawetz Melnick & Adelbergs Medical Microbiology 26/E, McGraw Hill Professional, 2012.

4. Roitt Essential Immunology, Peter J. Delves, Seamus J. Martin, Dennis R. Burton, Ivan M. Roitt, 12th edition, John Wiley & Sons, 2011 .

Abbas Clinical Immunology

### **6.2- Recommended Books**

-Color atlas of immunology, Antonio Pezzutto, Thieme, 2003.

### **6.3- Periodicals, Web Sites, etc**

Journal of Clinical immunology.

<http://mic.sgmjournals.org/>

Microbiology and Immunology on line

[www.sciencedirect.com](http://www.sciencedirect.com)

### **7. Facilities Required for Teaching and Learning:**

8. -Adequate infrastructure includes teaching places (teaching class, teaching halls, teaching laboratory) comfortable desks good source of aeration, bathrooms, good illumination and safety and security tools
9. Teaching tools: includes screens, computers CD (r/w) data shows, projectors, flip charts, white boards, video players, digital videos
10. Computer programs: for designing and evaluating MCQS.

**Course Coordinator:** Dr /Mamdoh M. Essmat

**Head of Department:** Dr/ Abeer Shenef

**Date:** 18/12/2011, **Revised:** 1/9/2012, **Revised:** 1/12/2013

## **COURSE SPECIFICATION OF SPORT PHYSIOLOGY IN MD OF MEDICAL PHYSIOLOGY**

**Sohag University**

**Faculty of Medicine**

1. Program on which the course is given; MD
2. Major or minor element of program: Minor.
3. Department offering the program: Department of Medical Physiology
4. Departments offering the courses: Department of Medical Physiology
5. Academic year /Level: 1st Part.
6. Date of specification approval: Faculty council No. "250", decree No. "1378" dated 28/12/2013

**A. Basic Information**

**Title:** Course specification of sport physiology in MD program of Medical Physiology

**Code:**phy0517-300

**Total hours:**

Credit	Total	Practical	Lectures	Title
4	60	-----	60	Sport physiology

**B. Professional Information**

**1. Overall Aims of Course**

The aim of this course is to provide the postgraduate with advanced medical knowledge and skills essential for the mastery practice of medical physiology and necessary for further training and practice in field of medical physiology.

1-Recent scientific knowledge essential for mastery of practice of medical physiology according to the international standards.

2-Skills necessary for applying scientific methods in field of medical physiology.

**2. Intended Learning Outcomes of Courses (ILOs)**

**a) Knowledge and understanding:**

By the end of the course the graduate should be able to:

1. Describe all the physical and chemical changes in the muscle during muscular exercise
2. Discuss all changes in each system during muscular exercise

**b) Intellectual Skills**

By the end of the course the graduate should be able to:

1. Evaluate the physiology and efficiency of certain body systems e.g. circulatory system according to changes associated with spots practice

**c) Professional and Practical Skills:**

By the end of the course the graduate should be able to:

1. Estimate physiological changes during muscular exercise e.g. excess respiratory quotient and O<sub>2</sub> debt.
2. Use the changes which are associated with sport practice in evaluation of physical fitness.

**d) General and Transferable Skills**

**By the end of the course the graduate should be able to:**

1. Present reports in seminars effectively
2. Assess himself and identify his personal learning
3. Use of different sources for information and knowledge.
4. Work coherently and successfully as a part of a team and team's leadership.

Practical	Lecture	No. of hours	Topics
	6	6	1. Physiologic anatomy of skeletal muscle
	6	6	2. Mechanism of muscle contraction
	6	6	3. Muscle during exercise (strength and endurance)
	6	6	4. Muscle metabolic system and exercise
<b>EFFECT OF ATHELETIC TRAINING ON MUSCLE PERFORMANCE &amp; PYPERTROPHY</b>			
	6	6	1. Respiration & exercise
	6	6	2. Cardio-vascular system in exercise
	6	6	3. Body fluids & salts in exercise
	4	4	4. Body heat in exercise
	4	4	5. Drugs & athletes
	4	4	6. Exercise in pregnancy
	4	4	7. Cardiac diseases & exercise
	4	2	8. Muscle diseases (myopathy) & exercise
	<b>60</b>	<b>60</b>	<b>Total</b>
	<b>4</b>	<b>4</b>	<b>Total credit</b>

**3. Contents**

**4. Teaching and Learning Methods**

- 4.1- Lectures
- 4.2- Practical sessions
- 4.3- research assignment
- 4.4- Short essay
- 4.5- Attending and participating in scientific conferences, workshops and thesis discussion to acquire general transferable skills

**5. Student Assessment Methods**

Method of assessment	The assessed ILOs
5.1- Observation of attendance and absenteeism.	- General transferable skills, intellectual skills
5.2- Written Exam: - Short essay: 40% - structured questions: 25% - MCQs: 20% - Commentary, Problem solving: 15%	- Knowledge - Knowledge - Knowledge, intellectual skills - Intellectual skills, General transferable skills,

5.3-Structured Oral Exam	- Knowledge, Intellectual skills, General transferable skills
5.4-OSPE	-Practical skills, intellectual skills
5.5 Computer search assignment	-General transferable skills, intellectual skills

### Assessment Schedule

Assessment 1	Final written exam (1 paper)	week 24
Assessment 2	Final Structured Oral Exam	week 24
Assessment 3	Final OSPE	week 24

### Weighting of Assessments

Final-term written examination	50%
Structured Oral Exam	30%
OSPE	20%
Total	100%

Formative only assessments: essay, simple research, Attendance and absenteeism

## 6. List of References

### 6.1- Essential Books (Text Books)

Guyton and Hall Textbook of Medical Physiology, John E. Hall, 12th edition, Elsevier Health Sciences, 2010.

### 6.2- Recommended Books

Ganong's Review of Medical Physiology, 24th Edition, McGraw Hill Professional, 2012

### 6.3- Periodicals, Web Sites, etc

- 1 American journal of physiology.
- 2 Journal of applied physiology.
- 3 Journal of clinical endocrinology and metabolism.
- 4 Physiological Review.
- 5 www.medicalstudent.com.
- 6 www.mhhe.com

## 7. Facilities Required for Teaching and Learning:

8. -Adequate infrastructure includes teaching places (teaching class, teaching halls, teaching laboratory), comfortable desks, good source of aeration, bathrooms, good illumination and safety and security tool
2. -Teaching tools: includes screens, computers, CD (r/w) data shows, projectors, flip charts, white boards, video players, digital video camera, copier, color and laser printers
3. -Computer programs: for designing and evaluating MCQS.

**Course Coordinator:** Dr. Hoda Mostafa

**Head of Department:** Dr. Ahmed Mostafa

**Date:** 18/12/2011, **Revised:**1/9/2012, **Revised:**1/12/2013

## COURSE SPECIFICATION OF PHYSIOLOGY IN MD OF MEDICAL PHYSIOLOGY

**Sohag University**

**Faculty of Medicine**

1. Program on which the course is given; MD
2. Major or minor element of program: Major
3. Department offering the program: Department of Medical Physiology
4. Departments offering the courses: Department o of Medical Physiology.
5. Academic year /Level: 2<sup>nd</sup> Part.
6. Date of specification approval: Faculty council No. "250", decree No. "1378" dated 28/12/2013

### **A. Basic Information**

**Title:** Course specification of physiology in MD program of Medical Physiology

**Code:** phy0517-300

Credit	TOTAL	PRACTICAL	LECTURES	Title
53	1170	750	420	Medical Physiology

### **B. Professional Information**

#### **1. Overall Aims of Course**

The aim of this course is to provide the postgraduate with advanced medical knowledge and skills essential for the mastery practice of medical physiology and necessary for further training and practice in field of medical physiology.

1. Recent scientific knowledge essential for mastery of practice of medical physiology according to the international standards.
2. Skills necessary for applying scientific methods in field of medical physiology

#### **3. Intended Learning Outcomes of Courses (ILOs)**

##### **a) Knowledge and understanding:**

By the end of the course the graduate should be able to:

1. Mention the recent, fundamentals and basic knowledge in the field of cell physiology
2. Mention The recent , fundamentals and basic knowledge sin the field of physiology of body systems and their control in case of health and a-Disease
3. Say the principles and fundamentals of quality of professional practice in the field of medical physiology
4. Trace the knowledge of the impact of professional practice on the environment and the methods of environmental development and maintenance

##### **b) Intellectual Skills**

By the end of the course the graduate should be able to:

1. Interpret ate physiological data information in the field of medical physiology

- and use it for evaluation of function of different body systems.
2. Conclude and calculate important physiologic values by physical laws and formulas
  3. Select from different diagnostic tools the one that can reach final solving problems in the field of medical physiology.
  4. Assess risks in professional practices in the field of medical physiology
  5. Plan to improve performance in the field of medical physiology.
  6. Make decision professionally in different professional contexts.
  7. Create in the field of medical physiology
  8. Discuss scientific problems with administration based on discussion

**c) Professional and Practical Skills:**

By the end of the course the graduate should be able to:

1. c-1 Master of the basic and modern professional skills in handling , dissection lab animals and isolation of certain organs.
2. Estimate vital variables in lab animals e.g. heart rate, blood pressure.,.....
3. Evaluate the physiology of each system clinically e.g. complete neurological examination for evaluation of CNS function
4. Estimate the level of certain substances e.g. hemoglobin levels, level of hormones,----
5. Use of Instrumental devices in evaluation of function and physiology of different body systems e.g. ECG, EMG, Audiometer.
6. Write & evaluate physiological reports
7. Evaluate and develop methods and tools existing in the area of **medical** physiology.
8. Use technological methods to serve the professional practice.
9. Train junior staff through continuous medical education programs.
10. Develop new methods, tools and ways of professional practice.

**d) General and Transferable Skills:**

By the end of the course the graduate should be able to:

1. Present reports in seminars effectively
2. Use appropriate computer program packages.
3. Teach others and evaluate their performance.
4. Assess himself and identify his personal learning d.5 Use of different sources for information and knowledge.
5. Work coherently and successfully as a part of a team and team's leadership.
6. Manage scientific meetings according to the available time.

**7. Contents**

Practical	Lecturer	Total No. of hours	Topics actually taught
50	10	60	1-Cell physiology
17	3	20	Functional system of the cell
16	4	20	Transport of substances through cell membrane
17	3	20	membrane potential
75	25	100	2-Muscle and Nerve

15	5	20	Physiologic anatomy of skeletal muscle
15	5	20	Mechanism of Muscle contraction
15	5	20	Excitation contraction coupling
15	5	20	Contraction and Excitation of smooth muscle
15	5	20	Drugs affecting skeletal muscle & smooth muscle
85	32	117	3-Circulation
8	3	11	Physiologic-anatomy of cardiac muscle
8	3	11	Cardiac cycle
11	5	15	Properties of cardiac muscle
10	3	11	Normal E.C.G.
8	3	11	Arrhythmia and E.E.G. changes
8	3	11	Micro-circulation & lymphatic system
8	3	14	Cardiac output & venous return
8	3	11	Cardiac failure
8	3	11	Heart sounds
8	3	11	Circulatory shocks
75	42	117	4-Kidney
12.5	7	19.5	Body fluids
12.5	7	19.5	Urine formation mechanism
12.5	7	19.5	Osmolarity of Body Fluids
12.5	7	19.5	Kidney & control of body fluids
12.5	7	19.5	Kidney & electrolytes
12.5	7	19.5	Role of the kidney in acid base balance
80	20	100	5-Blood
13	3	16	R.B.Cs Physiology
15	4	19	Blood Groups
13	3	16	Resistance to infection & W.B.Cs
13	3	16	Immunity
13	3	16	Allergy mechanism
13	4	17	Hemostasis & platelets
75	42	117	6-Respiration
12.5	7	19.5	Pulmonary Ventilation
12.5	7	19.5	Pulmonary Circulation
12.5	7	19.5	Physics of gas exchange

12.5	7	19.5	Transport of gases through blood
12.5	7	19.5	Regulation of Respiration
12.5	7	19.5	Respiratory diseases in short
75	42	117	7-Gastro-intestinal tract
12.5	7	19.5	General principles of G.I.T. function
12.5	7	19.5	Motor function of G.I.T.
12.5	7	19.5	Secretory function of G.I.T
12.5	7	19.5	Digestion & absorption
12.5	7	19.5	Physiology of G.I.T disorders
12.5	7	19.5	Liver:-
3.5	1	4.5	1. Physiologic-anatomy of the liver
3	2	5	2. Metabolic function of the liver
3	2	5	3. Miscellaneous metabolic function of the liver
3	2	5	4. Jaundus & its types
75	25	100	8- Metabolism
19	6	25	Obesity & starvation
18	7	25	Energetics & metabolic rate
19	6	25	Body temperature & its regulation
19	6	25	Mechanism of fever
75	59	134	9-Endocrinology
8	8	16	Pituitary hormones & control of secretion
8	6	14	Thyroid hormones
8	6	14	Insulin & glucagon
8	6	14	Diabetes mellitus
7	7	14	Para-thyroid hormones & calcium and phosphate metabolism
8	6	14	Reproductive & Hormonal functions in male
12	8	20	Female Physiology before pregnancy & female hormones
8	6	14	Physiology of pregnancy & lactation
8	6	14	Placental formation
85	123	208	10- C.N.S.
	12	10	1- Physiologic-anatomy of C.N.S.
10	10	20	2- Somatic sensation
18.5	20	30	3- Special sense
6.5		10	1. Eye :-
1.5	0.5	2	Optics of vision

2	1	3	Neural function of the retina
1	1	2	Central neuro-physiology of vision
2	1	3	Mechanism of colour vision & colour blindness
6		10	2. Ear :-
1	1	2	Physics of sound Transmission
1	1	2	Physiologic-anatomy of the ear
1	1	2	Transmission of sounds through the ear
1	1	2	Sensation of the sound in C.N.S.
2		2	Deafness & its types
6	4	10	3. Taste & smell:-
1	1	2	Taste buds & their functions
1.5	0.5	2	Mechanism of taste buds stimulation
1	1	2	Transmission of taste to the C.N.S.
1.5	0.5	2	Olfactory cells & their stimulation
1	1	2	Transmission of smells to the C.N.S.
8.5	14	30	4- Motor Function of the C.N.S.
3	7	10	Motor Function of the spinal cord
2	8	10	Cortical & and brain stem control
3.5	6.5	10	Cerebullem & basel ganglia & motor function
8.5	12	20	5- Cerebral cortex –intellectual function
8.5	12	20	6-Physiology of limbic system
8.5	12	20	7- Brain activity & sleep
8.5	12	20	8- Epilepsy
8.5	12	28	9-A.N.S Physiology
8.5	10	10	10- Cerebral blood flow Cerebro-spinal fluid & brain metabolism
<b>750</b>	<b>420</b>	<b>1170</b>	<b>total</b>
<b>25</b>	<b>28</b>	<b>53</b>	<b>Credit</b>

#### **4. Teaching and Learning Methods**

4.1 Lecturers

#### **5. Student Assessment Methods**

Method of assessment	The assessed ILOs
5.1- Observation of attendance and absenteeism.	- General transferable skills, intellectual skills
5.2- Log book	- General transferable skills
5.3-Written Exam: -Short essay: 40% -structured questions: 25% -MCQs: 20% -Commentary, Problem solving: 15%	- Knowledge - Knowledge - Knowledge, intellectual skills - Intellectual skills, General transferable skills,

5.4-Structured Oral Exam	- Knowledge, Intellectual skills, General transferable skills
5.5-OSPE	-Practical skills, intellectual skills

### Assessment schedule

Assessment 1.... log book (formative exam)	Week: 80
Assessment 1... Written exam.....	Week 96
Assessment 2... Structured Oral Exam .....	Week96
Assessment 3... OSPE exam .....	Week96.
Assessment 4 .....	Attendance & absenteeism throughout the course

### Weighting of Assessments

Final-term written examination .....	separate exam
Passing in the written exam is a condition to attend the following exams:	
Structured Oral Exam	50 %
OSPE Examination	50 %
Total	100%
Formative only assessments: simple research assignment, logbook, attendance and absenteeism	

## 6. List of References

### 6.1- Essential Books (Text Books)

Guyton and Hall Textbook of Medical Physiology, John E. Hall, 12th edition, Elsevier Health Sciences, 2010.

### 6.2- Recommended Books

Ganong's Review of Medical Physiology, 24th Edition, McGraw Hill Professional, 2012.

### 6.3- Periodicals, Web Sites, etc

- www.medicalstudent.com.
- www.mhhe.com
- American journal of physiology.
- Journal of applied physiology.
- Journal of clinical endocrinology and metabolism.
- Physiological Review.
- European Journal of Physiology.

## 7. Facilities Required for Teaching and Learning:

8. -Adequate infrastructure includes teaching places(teaching class ,teaching halls ,teaching laboratory )comfortable desks ,good source of aeration ,bathrooms ,good illumination and safety and security tool
9. -Teaching tools: includes screens, computers cd( r/w) data shows ,projectors, flip charts, white boards ,video players ,digital video camera, copier, colure and laser printers
10. -Computer programs: for designing and evaluating MCQS.

**Course Coordinator:** Dr. Hoda Mostafa

**Head of Department:** Dr. Ahmed Mostafa

**Date:** 18/12/2011, **Revised:**1/9/2012, **Revised:**1/12/2013