

**Program SPECIFICATION FOR Master Degree in Clinical Physiology****Code: 1703700****University:** Alexandria**Faculty:** Medical Research Institute**Program Specification****A- Basic information****1- Program title:** Master Degree in Clinical Physiology**2- Program type:** single double multiple **3- Department(s):** Human Physiology department**4- Coordinator:** Prof. Mervat El Seweify**5- External evaluator(s):** Dr. Essam Elshamy, Professor of physiology , faculty of medicine, Alexandria University**6- Last date of program specification approval:** 8/1/2017**B- Professional Information****1- Program aims:**

Produce scientifically and professionally capable Clinical Physiologists to meet regional and national needs while developing study skills and attitudes suitable for life-long learning. Equip students with knowledge, skills and critical awareness to make a significant contribution to research of the department

By the end of this program the student should be able to:

- Acquire an appropriate functional background of cells tissues, organs & systems, and demonstrate knowledge of normal physiological function of musculoskeletal, heart and respiratory systems..
- Review basic physiological functions of renal, endocrine, GIT, metabolic, blood and nervous system.
- Gain knowledge of the pathophysiology of different diseases.
- Observe and perform basic and some advanced procedural / practical skills competently
- Acquire experience in exercise physiology and its applications.



- Gain knowledge of quality standards in physiology lab and acquire basic knowledge of biochemistry.
- Understand basics behind the choice of appropriate statistical tests and Use information technology to increase physiological knowledge.

2- Intended learning outcomes (ILOs)

a- knowledge and understanding:

a1 - Recall physiological functions of different body systems at molecular, cellular and system levels.

a2 - Explain the pathophysiology of common diseases affecting different systems of the body.

a3 - Explain types of exercise and physiology of training and discuss the effect of professional practice on the environment.

a4 - Define Methods of functional assessment of different body systems.

a5 - Review medical ethics in research and recall quality standards in physiology lab.

a6 – Review biochemical principles in metabolism of carbohydrates, lipids, proteins and nucleic acid.

b- Intellectual skills:

b1- Distinguish basic cardiopulmonary and endocrine, renal, nervous ,metabolic and GIT physiological principles.

b2- Analyze the pathophysiology of common diseases affecting different body systems and interpret some physiological techniques.

b3- Analyze and solve problems through utilization of wide range of observational and scientific approach

b4- Analyze, compare and illustrate medical data using statistical analysis and computer science.

b5- Distinguish between different types of exercise

c- Professional and practical skills:

c1. Perform the technique of sputum induction.

c2. Apply different techniques of animal handling and experimental hypertension.

c3. Measure osmotic fragility, membrane extraction , Na- K ATPase and demonstrate lipid peroxidation and antioxidant assay

c4. Perform and interpret kidney and liver function tests, cardiac perfusion and renal ischemia reperfusion techniques.

c5. Develop skills in hormonal assay, buffer preparation, spectrophotometry and protein



electrophoresis

- c6. Setup and calibrate equipment required in clinical physiology lab and perform effectively physiological methods of functional assessment related to diseases (abnormal pulmonary function tests and inhalation challenge, abnormal ECG, ventilatory drive activity and pulse oximetry.
- c7. Observe and apply different experimental research techniques.
- c8. Perform tests of acid base balance and tests for detection of pathological constituents in urine and perform the measurements of lipid profile and interpret their clinical implication.
- c9. Evaluate muscle and nerve function
- c10. Demonstrate general guidelines needed to produce an exercise prescription for special populations(diabetic , Obese, orthopedic, pulmonary and cardiac patients) and Illustrate different Types of Exercise

d- General and transferable skills:

- d1-Communicate effectively through written and oral presentation.
- d2- Use information technology to increase physiological knowledge and use modern computing resources for data handling, information retrieval, document preparation, presentation and communication
- d3-Develop an independent approach to learning.
- d4-Establish working relationship with colleagues and work effectively as a part of a team and develop a culture of disseminating and sharing information with peers.
- d5- Share in detection of standards for evaluating others (e.g. subordinates, trainees).
- d6-Organize time to plan and implement efficient and effective modes of working.
- d7-Develop skills in reading, writing and research.

3- Academic standards

3a External references for standards (Benchmarks)

Generic Academic Reference Standards if the National Authority for Quality Assurance and Accreditation of Education (NAQAAE)

Date of Academic Reference standards (ARS) approval by Institute Council:

12/2/2014

3b Comparison of provision to selected external references

NAQAAE	ARS for master in clinical physiology
A1-Basic facts , theories, of the specialty and related subjects/ fields	A1.Review physiological functions of different body systems at molecular, cellular and system level in health



	<p>and disease.</p> <p>A2.Explain the pathophysiology of common diseases affecting different systems of the body in common</p> <p>A3.Gain knowledge of basic clinical skills.</p>
A2-Mutual relation between professional practice and effects on environment	A4.Explain the effect of professional practice on the environment
A3-Main scientific advances in the field of practice	A5.Review main scientific advances in clinical physiology
A4-Fundamentals of ethical & legal practice	A7.Identify basic principles and ethics of scientific research
A5 -Quality standards of the practice	A6.Identify quality standards in physiology lab
A6- Basics and ethics of scientific research	A7.Identify basic principles and ethics of scientific research.
B1 -Interpret, analyze & evaluate the information to solve problems	B1. Critically analyze physiological problems and plan strategies for their solution through utilization of observational and scientific approaches.
B2- Solve some problems that do not conform to classic data (incomplete data)	B7.Analyze unusual physiological problems and plan strategies for their solution.
B3- Integrate different information to solve professional problems	B7.Analyze unusual physiological problems and plan strategies for their solution.
B4- Conduct a scientific research &/Or write scientific systematic approach to a research problem (hypothesis)	B11. Conduct a scientific research through thesis.
B5- Evaluate risks imposed during professional practice.	A4.Discuss the effect of professional practice on the environment
B6- Plan for professional improvement	B8.Plan for periodic self-enhancement of his/her skills through assignments
B7- Take professional decisions in wide range of professional situations	<p>B9.Appraise the benefits of belonging to and participating in a professional society, select appropriate societies.</p> <p>B10.Take professional decisions, analyze, compare and illustrate</p>



	medical data using appropriate statistical tests.
C1- Competent in all basic and some of the advanced professional skills (to be determined according to the specialty board/ department)	C1.Develop skills of observation and instrumentation used in the measurement of physiological parameters in laboratory/clinical setting(eg: ECG provocational challenge, pulmonary function tests, hormonal assays, lipid profile and kidney function tests, and interpretation of obtained data
C2- Write and appraise reports	C2. Analyze, interpret and write reports on different laboratory assessment used in the diagnosis of common disorders of the different body systems (e.g. ECG, spirometry, methacholine inhalation challenge, hormonal assays, lipid profile, and kidney function tests).
C3-Evaluate methods and tools used in specialty	C5.Evaluate methods used in measuring different physiological functions.
D1- Communicate effectively using all methods	D1.Communicate effectively through written and oral presentation.
D2- Use information technology to improve his/her professional practice	D2.Use information technology in handling physiological data, information retrieval, document preparation, presentation and communication
D3-Practice self-appraisal and determines his learning needs	D3.Develop an independent approach to learning as a preparation for continuous professional development
D4- Share in determination of standards for evaluation of others (e.g.: subordinates/ trainees etc.)	D4. Share in determination of standards for evaluating others (e.g. subordinates, trainees) through journal club
D5- Use different sources of information to obtain data	D7.Use different sources of information to obtain data and develop skills in reading, writing and research.
D6- Work in teams - Manage time effectively	D5.Establish working relationship with colleagues, work effectively as a part of a team and develop a culture of disseminating and sharing information with peers. D6.Organize and manage time to plan



	and implement efficient and effective modes of working
D7-Work as team leader in situations comparable to his work level	D8.Work as team leader in situations comparable to his work level
D8-Learn independently and seek continuous learning	D3.Develop an independent approach to learning as a preparation for continuous professional development

4- curriculum structure and contents

4.a program duration: 3-5 years

4.b program structure :

4.b.i- No. of hours per week in each year/semester:

Semester	Core Courses	Elective Courses
	No. of hours	No. of hours
First semester	6	
Second semester	6	
Third semester	6	
Fourth semester	4	2
Fifth semester	4	2

4.b.ii- No. of credit hours Lectures Practical Total

 Compulsory Elective Optional

4.b.iii- No. of credit hours of basic science courses
(elective from other departments except for computer and statistics) No. %

4.b.iv- No. of credit hours of courses of social sciences and humanities. No. %

4.b.v- No. of credit hours of specialized courses (مواد التخصص) No. %



4.b.vi- No. of credit hours of other courses (e.g. statistics, computer)

No. %

4.b.vii- Field Training

No. %

4.b.viii- Program levels (in credit-hours system)

Student is required to pass at least 12 credit hours with CGPA not less than C+ before submitting a thesis proposal.

5- Program Courses

5.1- Compulsory (26Cr)

Code No.	Course Title	No. of credit hours	No. of hours /week	
			Lecture	Practical
1703701	Elementary Physiology I	4	3	2
1703702	Elementary Physiology II	4	3	2
1703703	Clinical Physiology I	4	3	2
1703704	Clinical Physiology II	4	3	2
1703705	Exercise physiology	4	3	2
1701720	Biochemistry	2	1	2
1721720	Medical Statistics	2	1	2
1721721	Computer	2	1	2

5.2- Elective I (2 Cr)

Code No.	Course Title	No. of credit hours	No. of hours /week	
			Lecture	Practical
1700750	Nutrition	2	1	2
1722721	Molecular Biology	2	1	2
1705720	Hematology	2	1	2
1708720	Immunology	2	1	2
1713720	Genetics	2	1	2

5.3- Elective II (2 Cr)



Code No.	Course Title	No. of credit hours	No. of hours /week	
			Lecture	Practical
1715751	Chest Diseases	2	1	2
1715752	Renal Diseases	2	1	2
1715753	Endocrinal Diseases	2	1	2
1715754	Cardiac Diseases	2	1	2

5.4- Optional – (none)

6- Program admission requirements Graduate students with a M.B.Ch.B. of Medicine

7- Regulations for progression and program completion

For the progression and completion of the program to obtain the degree of master in clinical physiology, the student must complete 30 credit hours with CGPA of at least C+ and submit a thesis validity report.

8- Evaluation of Students enrolled in the program.

Tool evaluation	Intended learning outcomes being assessed
Written	ILOs a &b
Practical	ILOs c
Oral	ILOs a ,b &d
Semester Work	ILOs b & d

Evaluation of the Program

Evaluator	Tool	Sample
1- Senior students	Interview	At least 50 %



2- Alumni	Interview	Representative sample
3- Stakeholders (Employers)	Interview	Representative sample
4- External Evaluator(S) or External Examiner (s)	Reports	Name of evaluator or examiner
5- Other		

Dates of Previous editions/revisions:

Editions/Revisions Number	Date
Edition no.1	2009
Edition no. 2	2011
Edition no.3	5/6/2014
Edition no.3, revision no.1	12/2014
Edition no.3, revision no.2	10/2016

Program coordinator:

Name: Prof. Mervat El Seweify

Signature:

Department Head:

Name: Prof.Azza Saad

Signature:

Date of Department Council Approval:7 /9/2017***Matrices:******Program Aims vs ILOs matrix**

<i>ILOs</i>	<i>Program Aims</i>						
	1	2	3	4	5	6	7
A1	×	×					
A2			×				
A3					×		
A4				×			
A5						×	
A6						×	
B1		×					
B2			×				
B3				×			



B4							×
B5					×		
C1				×			
c2				×			
c3				×			
c4				×			
c5				×			
c6				×			
c7				×			
c8				×			
c9				×			
c10					×		
d1	×	×	×	×	×	×	×
d2	×	×	×	×	×	×	×
d3	×	×	×	×	×	×	×
d4	×	×	×	×	×	×	×
d5				×	×		
d6	×	×	×	×	×	×	×
d7				×			×

*** Courses vs Program ILOs matrix**

a-Knowledge and understanding:

Course Title	a1	a2	a3	a4	a5	a6
Elementary Physiology I	×			×		
Elementary Physiology II	×			×		
Clinical Physiology I		×		×	×	
Clinical Physiology II		×		×	×	
Exercise physiology			×			
Biochemistry						×
Medical Statistics						
Computer						

b- Intellectual skills:

Course Title	b1	b2	b3	b4	b5
Elementary Physiology I	×				
Elementary Physiology II	×				



C10																				X	X							
D1																							X					
D2																							X					
D3																								X				
D4																									X			
D5																								X				
D6																										X		
D7																											X	

Teaching and Learning Methods Vs Courses Matrix

	1703701	1703702	1703703	1703704	1703705	1703720	1703721
Lecture	√	√	√	√	√	√	√
Practical/Clinical	√	√	√	√	√	√	



Brainstorming	√	√	√	√	√	√	√
Discussion Groups							
Problem Solving	√		√		√		
Case Study					√		
Field Training							
Role playing							
Training Workshops							
Self-Directed Learning			√		√	√	√
e-learning							
Project							