



كلية الطب
Faculty of Medicine

Program Specifications for MSc of Physiology
(2022-2023)

B- Professional Information:

- **Program aims:**

Graduate of Master Degree in Medical Physiology should be able to:

- 1.1. Prepare highly qualified physiologists in appropriate fields
- 1.2. Introduce candidates to the basics of scientific medical research and its ethics.
- 1.3. Enable the candidates to develop basic concepts and principles of human physiology logically and clearly to correlate and analyze physiological phenomena.
- 1.4. Provide an educational environment that encourages creativity and research both fundamental and applied.
 - 1.5. Enable students to improve their skills in research and undergraduate teaching.
- 1.6. Demonstrate in-depth the cellular basis of medical physiology, structure and function of organ systems of the body and the control systems of the human body and various body functions in health and disease.
- 1.6. Develop knowledge concerning molecular biology and the basis of genetics.
- 1.7. Understand and get the best of published scientific researches
- 1.8. Demonstrate skills in oral and written presentations.
- 1.9. Provide an understanding of qualitative assurance issues.
- 1.10. Become acquainted with the methods of consulting the literature and prepare review.
- 1.11. Develop professional skills in techniques used for experimental physiology.
- 1.12. Graduate with a degree in physiology can pursue careers in research, teaching or management in academia, the pharmaceutical and biotechnology industries, private research institutions, government science or regulatory agencies, or medicine and health care.

2.Intended learning outcomes (ILOs):

2.1. Knowledge and understanding:

By the end of the study of master program in physiology the candidate should be able to:

- 2.1.1. Explain the essential facts and principles of medical biochemistry, including cell biology and genetic control of control of cellular functions.

- 2.1.2. Identify the main physiological subjects including central nervous system, special sense, endocrine system and reproduction, general metabolism, renal system, cardiovascular system, respiratory system, digestive system, nerve and muscle, blood and general and autonomic nervous system.
- 2.1.3. Enumerate the recent and update developments in the most important themes related to Medical Physiology.
- 2.1.4. State the impact of common problems related to Medical Physiology on the society and how good practice can improve these problems.
- 2.1.5. Define the ethical and scientific principles of medical research methodology.
- 2.1.6. Discuss the basics and standards of quality assurance to ensure good experimental practice in Medical Physiology.

2.2. Intellectual skills:

By the end of the program the candidate should be able to:

- 2.2.1. Correlate the relevant facts of relevant basic and clinically supportive sciences with reasoning, diagnosis and management of common problems of the Medical Physiology.
- 2.2.2. Interpret an investigatory and analytic thinking “problem-solving” approaches to relevant situations related to Medical Physiology.
- 2.2.3. Plain research projects.
- 2.2.4. Design and/or present a case or review (through seminars/journal clubs) in one or more of common clinical problems relevant to the Medical Physiology.
- 2.2.5. Correlate in clinical or laboratory risk management activities as a part of clinical governance.
- 2.2.6. Present and defend his/her data in front of a panel of experts.
- 2.2.7. Formulate management plans and alternative decisions in different situations in the field of Medical Physiology.

2.3. Professional and practical skills:

By the end of the study of master program in physiology the candidate should be able to:

- 2.3.1. Perform the following basic lab skills essential to the course;
 - 2.3.1.A. Isolated perfuse heart (rabbit & frog) experiments.
 - 2.3.1.B. Recording normal arterial blood pressure, heart rates & ECG in human and experiment animals (e.g. recording the effect of cholinergic and adrenergic drugs on blood pressure, heart rate, ECG).

- 2.3.1.C. Measurement of activity of the baroreceptors on sympathetic and parasympathetic nervous systems.
- 2.3.1.D. Assessment of hemoglobin contents, bleeding time, prothrombin time, ESR, blood groups, blood hemolysis and blood indices in human.
- 2.3.1.E. Recording of smooth muscle contractility, study the effect of autonomic receptors agonist and antagonist on contractility, motility and secretion, gastric function tests.
- 2.3.2. Interpret the following non-invasive/invasive procedures/experiments:
 - 2.3.2.A. Isolated perfused heart (rabbit & frog) experiments.
 - 2.3.2.B. Recording normal arterial blood pressure, heart rates & ECG in human and experiment animals (e.g. recording the effect of cholinergic and adrenergic drugs on blood pressure, heart rate, ECG).
 - 2.3.2.C. Measurement of activity of the baroreceptors on sympathetic and parasympathetic nervous systems.
 - 2.3.2.D. Assessment of kidney functions as GFR, RBF and kidney tubular functions.
 - 2.3.2.E. Indirect method for measurement of metabolic rate and measurement of body temperature.
- 2.3.3. Use instruments and devices in evaluation of:
 - 2.3.3.A. Isolated perfused heart (rabbit & frog) experiments.
 - 2.3.3.B. Recording of smooth muscle contractility, study the effect of autonomic receptors agonist and antagonist on contractility, motility and secretion, gastric function tests.
 - 2.3.3.C. Assessment of kidney functions as GFR, RBF and kidney tubular functions.
- 2.3.4. Develop plans for performing experiments related to Medical Physiology.
- 2.3.5. Counsel and educate students, technicians and junior staff, in the lab about conditions related to Medical Physiology; including handling of samples, devices, safety, and maintenances of laboratory equipment.
- 2.3.6. Use information technology in some of the Medical Physiology related situations.
- 2.3.7. Provide health care services aiming to support patient care, solve health problems and better understanding of the normal structure and function.
- 2.3.8. Write competently and evaluate reports for situations related to the field of Medical physiology.

2.4. General and transferable skills:

By the end of the study of master program in physiology the candidate should be able to:

- 2.4.1. Perform practice-based improvement activities using a systemic methodology (share in audits and risk management activities and use logbooks).
- 2.4.2. Facilitate learning of students, lab technical staff and other professionals including their evaluation and assessment.
- 2.4.3. Collect and verify data from different sources.
- 2.4.4. Analyze and interpret data.
- 2.4.5. Appraise evidence from scientific studies.
- 2.4.6. Use information technology to manage information, access on-line medical researches to support his/her education.
- 2.4.7. Work effectively with others as a member or leader of a research group and/or a health care team.
- 2.4.8. Provide information using effective nonverbal, explanatory, questioning, and writing skills.
- 2.4.9. Select and use appropriate education methods and materials in the field of Medical Physiology.
- 2.4.10. Demonstrate a commitment to ethical principles of scientific research.
- 2.4.11. Demonstrate respect, sensitivity and responsiveness to patients' culture, age, gender and disabilities.
- 2.4.12. Work effectively in relevant academic and/or health care delivery settings and systems including good administrative and time management.
- 2.4.13. Practice cost-effective health care and resource allocation that does not compromise quality of care.
- 2.4.14. Partner with health care managers and health care providers to assess, coordinate, and improve health care and predict how these activities can affect system performance.

- **Program Academic Reference Standards (ARS):**

- Faculty of Medicine, Minia university adopted the general national academic reference standards provided by the national authority for quality assurance and accreditation of education (NAQAAE) for all postgraduate programs (Faculty Council Decree No.6854, in its session No.177, dated: 18\5\2009).
- Faculty of Medicine, Minia university has developed the academic standards (ARS) for Master (MSc) program and approved in faculty Council decree No.7528, in its session No.191, dated: 15\3\2010).

and these standards (Faculty ARS) have been updated and approved in faculty Council No.52\2 dated :20\2\2023 {Annex 1}.

- Then, in view of the adopted general standards, Medical Physiology department has developed the intended learning outcomes (ILOs) for MSc program in medical physiology. The date of program specifications first approval was by department council: 13-5-2013 and the last date of program specification approval by department council: 6\3\2023 {Annex 2}.

• **Program External References: Not Applicable**

• **Program Structure and Contents:**

5.1. Program duration: 2 years – maximum 4 years

5.2. Program structure:

- Total Hours: 218 hr.
- Lecture: 134 hr.
- Practical: 84 hr.
- Basic (compulsory) sciences courses: No.1 Percentage: 30%
- Specific courses related to the specialty: No.1 Percentage: 70%
- Training programs & scientific activities: Distributed all through the whole program.
- Other courses: No. Nil Percentage: 0%

5.3. Levels of program in credit hours system: Not applicable

5.4. Program courses:

- Two courses are compulsory {Annex 3}. To ensure complete coverage of all program ILOs by courses, a correlation between them has been done {Annex 4}.

Course Title	No. of hours			Program ILOs Covered
	Total	Lectures	Practical	
FIRST PART (Level of course):				
1. Basic course; Medical Biochemistry (Compulsory)	70	50	20	2.1.1, 2.2.1, 2.4.3, 2.4.4
Scientific Programs activities And Training				2.1.1, 2.1.5, 2.2.1, 2.2.3, 2.2.5, 2.3.5, 2.3.6, 2.3.7, 2.4.1, 2.4.2, 2.4.5, 2.4.6, 2.4.7, 2.4.8, 2.4.10, 2.4.11, 2.4.12, 2.4.13, 2.4.14
SECOND PART (Level of course):				
2. Advanced Medical Physiology	150	100	50	2.1.2, 2.1.6, 2.2.7, 2.3.1, 2.3.2, 2.3.3, 2.3.6, 2.4.3, 2.4.4

Scientific activities and Training Programs		2.1.2, 2.1.3, 2.1.4, 2.1.5, 2.1.6, 2.2.2, 2.2.3, 2.2.4, 2.2.5, 2.2.6, 2.2.7, 2.3.1, 2.3.2, 2.3.3, 2.3.4, 2.3.5, 2.3.6, 2.3.7, 2.3.8, 2.4.1, 2.4.2, 2.4.5, 2.4.6, 2.4.7, 2.4.8, 2.4.9, 2.4.10, 2.4.11, 2.4.12, 2.4.13, 2.4.14
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- **Program admission requirements:**

- **General requirements:**

- Candidates should have either: MB BCH degree from any Egyptian faculty of medicine or Equivalent degree from medical schools abroad approved by the ministry of higher education.
 - Candidate should complete the house officer training/internship year.
 - Candidates must follow postgraduate regulatory rules of Minia faculty of medicine.

- **Specific requirements:**

- Candidates graduated from Egyptian universities should have at least "Good Rank" in their final year/cumulative years' examination, and "Good Rank" in physiology course too.
 - Candidate should know how to speak and write English well.
 - Candidate should have computer skills.

- **Regulations for progression and program completion:**

Program duration: 2-4 years; divided into:

Part 1: (1 year; 30% from total marks)

Program-related essential courses (Basic sciences):

Students are allowed to set the exam of these courses after 12 months from applying to the master's degree.

Two sets of exams: either in April or in October.

Thesis: no marks

- Thesis and at least one published research from the thesis for the master thesis
- Master thesis subject should be officially registered after approval of department and faculty council.

- Defending and acceptance of the thesis should not be set before 24 months from registering for the Master degree and at least one month before setting to the second part examination.

Part 2: (2-4 years, 70% from total marks)

Program-related academic and specialized science courses and ILOs

- Students are not allowed to set the exams of these courses before 2 years from applying to the master degree.
- For the student to pass, a score of at least 60% in written, oral and practical exams in each course is required.
- Total Degrees 1000 marks (300 marks for 1st part - 700 marks for 2nd part)
 - Written exam 40% (280 marks) (40%)
 - Oral and Practical exams 60% (420 marks).
- Fulfillment of the requirements in each course as described in the template and registered in the **log book** is a prerequisite for candidates to be assessed and undertake part 1 and part 2 examinations; as following:
 - Training courses along the duration of the program
 - Seminars at least 10 seminars
 - Thesis discussion at least 3 discussions
 - Workshops
 - Conference attendance at least one conference
 - Other scientific activities requested by the department

Teaching & learning methods:

Method of teaching/ learning	Taught/ learnt ILOs
Lectures	From 2.1.1 to 2.2.7
Practical sessions	From 2.3.1 to 2.4.14
Self-learning	From 2.1.1 to 2.4.14

Methods of student assessment:

Method of assessment	The assessed ILOs	Weight of assessment
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1-Research (Thesis)	From 2.1.1 to 2.4.14	No Marks	
2-Written Exams: a-Short essay	From 2.1.1 to 2.2.7	1 st part	2 nd part
		120 marks (12%)	280 marks (28%)
b-Problem solving	From 2.1.1 to 2.3.8		
3-Practical Exams	From 2.3.1 to 2.4.14	90 marks (9%)	200 marks (20%)
4- Oral Exams	From 2.1.1 to 2.2.7 and 2.4.1 to 2.4.14	90 marks (9%)	220 marks (22%)
		Total	
		300 marks (30%)	700 marks (70%)
5. Log book	From 2.1.1 to 2.4.14	No Marks	

• **Program Evaluation:**

Evaluator (By whom)	Method/tool	Sample
• Senior students (Students of last year)	Questionnaires	Almost all
• Graduates (Alumni)	Questionnaires	10
• Stakeholders	Questionnaires and meetings	2 at least
• External & Internal evaluators and external examiners	Reports	2 at least
• Quality Assurance Unit	Reports Questionnaires	

- **Program Coordinators: Dr. Wagdy Nashaat Habib**

- **Head of Department: Prof Dr. Merhan Mamdouh Ragi**

Merhan M. Ragi

**Date of program specifications 1st approval
by department council: 13/05/2013**

Date of approval of the last update:

06/03/2023

Annex (1): Comparison between General Academic Reference Standards (GARS**) and Faculty Academic Reference Standards (**ARS**)**

Annex (1): Comparison between National Academic Quality Assurance & Accreditation (NAQAAE) General Academic Reference Standards (GARS**) and Faculty Academic Reference Standards (**ARS**)**

NAQAAE General ARS for MSc Programs	Faculty ARS
1. مواصفات الخريج: خريج برنامج الماجستير في أي تخصص يجب أن يكون قادرا على	1. Graduate Attributes: Graduate of master (MSc) program should be able to:
1.1 إجادة تطبيق أساسيات و منهجيات و البحث العلمي واستخدام أدواته المختلفة	1.1. understanding and applying of basics of research method and research tools.
1.2 تطبيق المنهج التحليلي واستخدامه في مجال التخصص	2.1. Critically analyze, evaluate, and effectively communicate findings, theories, and methods.
1.3 تطبيق المعارف المتخصصة و دمجها مع المعارف ذات العلاقة في ممارسته المهنية	3.1. Apply integrated professional and general knowledge in his scholarly field and at the interface between different fields.
1.4 إظهار وعيا بالمشاكل الجارية و الرؤى الحديثة في مجال التخصص	4.1. Demonstrate awareness of community health needs related to the field of specialization by understanding the beneficial interaction with the society to improve quality of life

1.5 تحديد المشكلات المهنية و إيجاد حلول لها	5.1. Demonstrating proficiency, required to solve current complex problems in his scholarly field.
1.6 إتقان نطاق مناسب من المهارات المهنية المتخصصة ، واستخدام الوسائل التكنولوجية المناسبة بما يخدم ممارسته المهنية	6.1. Master a variety of technical skills in his scholarly field and expert relevant equipment, technology, and software.
1.7 التواصل بفاعلية و القدرة على قيادة فرق العمل	7.1. Gain leadership skills and be able to communicate efficiently with colleagues and get the best results.
1.8 اتخاذ القرار في سياقات مهنية مختلفة	8.1. Take professional situational decisions and logically support them.
1.9 توظيف الموارد المتاحة بما يحقق أعلى استفادة والحفاظ عليها	9.1. Optimal use of available resources to achieve research or best patient health care and ensure its maintenance.
1.10 إظهار الوعي بدوره في تنمية المجتمع و الحفاظ على البيئة في ضوء المتغيرات	10.1. Demonstrate awareness of its role in community health development
1.11 التصرف بما يعكس الالتزام بالنزاهة و المصداقية و الالتزام بقواعد المهنة	11.1. Exhibit ethical behavior that reflect commitment to the code of practice
1.12 تنمية ذاته أكاديميا و مهنيا و قادرا علي التعلم المستمر	12.1. demonstrate the ability to sustain a lifelong personal and professional growth.
NAQAAE ARS for Postgraduate Programs	Faculty ARS
2.1 المعرفة و الفهم : بانتهاج دراسة برنامج الماجستير يجب أن يكون الخريج على فهم ودراية بكل من	Knowledge and understanding Upon completion of the Master Program in Medical physiology, the graduate should have sufficient knowledge and understanding of:
2.1.1 النظريات و الأساسيات المتعلقة بمجال التعلم وكذا في المجالات ذات العلاقة	2.1.1. Understand the scientific basis and modern knowledge in the field of specialization and related medical sciences
2.1.2 التأثير المتبادل بين الممارسة المهنية وانعكاسها علي البيئة	2.1.2. The mutual influence of professional practice on work environment, working conditions, and job characteristics.
2.1.3 التطورات العلمية في مجال التخصص	2.1.3. Scientific developments in the field of specialization
2.1.4 المبادئ الأخلاقية و القانونية للممارسة المهنية في مجال التخصص	2.1.4. Recognize basics of medico-legal aspects of practice, malpractice and avoid common medical errors
2.1.5 مبادئ و أساسيات الجودة في الممارسة المهنية في مجال التخصص	2.1.5. Quality principles in the scholarly field
2.1.6 أساسيات وأخلاقيات البحث العلمي	2.1.6. Basis of research methodology and medical ethics.

<p>2.2 المهارات الذهنية: بانتهاؤ دراسة برنامج الماجستير يجب أن يكون الخريج قادرا على:</p>	<p>2.2 Intellectual skills Upon completion of the master program, the graduate must be able to do the following:</p>
<p>2.2.1 تحليل و تقييم المعلومات في مجال التخصص و 2.2.1 القياس عليها لحل المشاكل</p>	<p>2.2.1. Use judgment skills for analytical and critical problem solving</p>
<p>2.2.2 حل المشاكل المتخصصة مع عدم توافر بعض المعطيات</p>	<p>2.2.2. Capable of integrating knowledge and dealing with complex subjects to solve problems</p>
<p>2.2.3 الربط بين المعارف المختلفة لحل المشاكل المهنية</p>	<p>2.2.3. Be capable of integrating research results and/or results of history, physical and laboratory test findings to solve a research or a clinical problem.</p>
<p>2.2.4 إجراء دراسة بحثية و /أو كتابة دراسة علمية منهجية حول مشكلة بحثية</p>	<p>2.2.4. Effectively apply research methods and carrying out a medical research thesis</p>
<p>2.2.5 تقييم المخاطر في الممارسات المهنية</p>	<p>2.2.5. Be aware of risk management principles, and patient safety.</p>
<p>2.2.6 التخطيط لتطوير الأداء</p>	<p>2.2.6. Establish goals, commitments, and strategies for improved professional performance in the field of specialty</p>
<p>2.2.7 اتخاذ القرارات المهنية في سياقات مهنية متنوعة</p>	<p>2.2.7. Take professional situational decisions and logically support them.</p>
<p>2.3 المهارات المهنية: بانتهاؤ دراسة برنامج الماجستير يجب أن يكون الخريج قادرا على:</p>	<p>2.3 Professional & Practical skills Upon completion of the master program, the graduate must be able to do the following :</p>
<p>2.3.1 إتقان المهارات المهنية الأساسية و الحديثة</p>	<p>3.2.1. Master the basic and some advanced professional skills in his scholarly field.</p>
<p>2.3.2 كتابة و تقييم التقارير المهنية</p>	<p>3.2.2. Write and evaluate medical or scientific reports</p>
<p>2.3.3. تقييم الطرق و الأدوات القائمة في مجال التخصص</p>	<p>3.2.3. Assess and evaluate technical tools during research</p>
<p>2.4 المهارات العامة و المنتقلة بانتهاؤ دراسة برنامج الماجستير يجب أن يكون الخريج قادرا على</p>	<p>2.4 General and transferable skills Upon completion of the master program, the graduate must be able to do the following:</p>
<p>2.4.1 التواصل الفعال بأنواعه المختلفة</p>	<p>4.2.1. Communicate effectively using a written medical record, electronic medical record, or other digital technology.</p>
<p>2.4.2 استخدام تكنولوجيا المعلومات بما يخدم الممارسة المهنية</p>	<p>4.2.2. Use of information technology (computer to create, process, store, secure and exchange electronic data) in the field of medical practice.</p>
<p>2.4.3 التقييم الذاتي وتحديد احتياجاته التعليمية الشخصية</p>	<p>4.2.3. Assess himself and identify personal learning needs</p>

2.4.4 استخدام المصادر المختلفة للحصول على المعلومات و المعارف	4.2.4. Use various sources for information (physical and digital sources).
2.4.5 وضع قواعد ومؤشرات تقييم أداء الآخرين	4.2.5. Setting indicators for evaluating the performance of others
2.4.6 العمل في فريق ، وقيادة فرق في سياقات مهنية مختلفة	4.2.6. Work in a team, and Apply leadership skills to enhance team functioning, the learning environment, and/or the health care delivery system
2.4.7 ادارته الوقت بكفاءة	4.2.7. Manage time efficiently
2.4.8 التعليم الذاتي والمستمر	4.2.8. Demonstrate skills of self-learning and lifelong learning needs of medical profession.

Annex (2): ARS VS. MSc PROGRAM of Medical Physiology

Annex (2): ARS VS. MSc PROGRAM of Medical Physiology

NAQAAE General ARS for Postgraduate Programs	Faculty A R S	MSc Program of Medical Physiology
1. مواصفات الخريج خريج برنامج الماجستير في أي تخصص يجب أن يكون قادراً على:	1. Graduate Attributes Master of Graduate (MSc) in program Medical Physiology should be able to:	1. Program Aims of Master Graduate (MSc) in program Medical Physiology should be able to:
1.1 إجابة تطبيق أساسيات و منهجيات البحث العلمي واستخدام أدواته المختلفة	1.1. Demonstrate competency in application of principles and approaches of scientific research and be able to use its different tools.	1.1. Demonstrate competency in practical use of basics, methods and tools of scientific research in the field of medical physiology.
1.2 تطبيق المنهج التحليلي واستخدامه في مجال التخصص	1.2. Apply and use the scientific approach in the field of professional practice in Medical Physiology.	1.2. Apply the analytical scientific way in the field of professional practice in Medical Physiology.
1.3 تطبيق المعارف المتخصصة و دمجها مع المعارف ذات العلاقة في ممارسته المهنية	1.3. Apply the specialized knowledge of the specialty and be able to integrate such information with related subjects/fields during professional practice	1.3. Apply the specialized knowledge essential for the practice of pathology according to the international standards and be able to correlate such knowledge with related

		basic subjects during professional practice of Medical Physiology.
إظهار وعيا بالمشاكل الجارية و الرؤى الحديثة في مجال التخصص 1.4	1.4. Demonstrate adequate awareness of the current problems and recent visions in the field of Medical Physiology	1.4. Demonstrate a satisfactory level of awareness as regards the current & common problems and recent updates in the field of Medical Physiology.
تحديد المشكلات المهنية و إيجاد حلول له 1.5	1.5. Recognize and solve problems in Medical Physiology	1.5. Identify and solve common healthproblems in Medical Physiology
إتقان نطاق مناسب من 1.6 ، المهارات المهنية المتخصصة واستخدام الوسائل التكنولوجية المناسبة بما يخدم ممارسته المهنية	1.6. Acquire a suitable range of competencies in the area of specialization and use the suitable information technology efficiently to improve the professional practice.	1.6. Acquire all essential competencies necessary to enable the graduate to practice in a safe, scientific & ethical approach as well as using efficiently the suitable information technology to improve the professional practice in the field of Medical Physiology.
التواصل بفاعلية و 1.7 القدرة على قيادة فرق العمل	1.7. Demonstrate effective communication skills and be able to work as a team leader	1.7. Exhibit practically effective communication skills that enable exchange of information with other health professionals, colleagues, students and develop the skills of leadership.
اتخاذ القرار في 1.8 سياقات مهنية مختلفة	1.8. Take appropriate decisions in different situations during the professional practice.	1.8. Acquire the skills of decision-making in different situations during the professional practice.
توظيف الموارد 1.9 المتاحة بما يحقق أعلى استفادة والحفاظ عليها	1.9. Employ & maximize the use of the available resources and ensure keeping them.	1.9. Allocate & make use properly of the available resources and ensure maintaining them allocate & maximize the use.
إظهار الوعي 1.10 بدوره في تنمية المجتمع و الحفاظ على البيئة في ضوء المتغيرات	1.10. Develop active participation in assessment of community needs and problems' solving in view of	1.10. Show adequate awareness of public health and health policies and actively share in and in assessment of community needs & solve their problems in view of

	the continuous changes.	the continuous national and international changes.
التصرف بما 1.11 يعكس الالتزام بالنزاهة و المصداقية و الالتزام بقواعد المهنة	1.11. Demonstrate an appropriate attitude and manners that reflect the credibility and stickiness to the roles and standards of code of practice.	1.11. Manifest appropriate attitude and professionalism that comply with the adopted standards of code of practice.
تنمية ذاته 1.12 أكاديميا و مهنيا و قادرا علي التعلم المستمر	1.12. Acquire skills of academic and professional self-development and capability of continuous learning.	1.12. Acquire essential skills of life-long learning and continuous medical education and professional self-development.

NAQAEE ARS for • Postgraduate Programs	2. Faculty ARS	2. Program ILOs
المعرفة و الفهم 2.1: بانتهاج دراسة برنامج الماجستير في الفسيولوجيا الطبية يجب أن يكون الخريج على فهم ودراسة بكل من:	2.1. Knowledge and understanding: Upon completion of the MSc Program in Medical Physiology, the graduate should have sufficient knowledge and understanding of:	2.1. Knowledge and understanding
النظريات و الأساسيات المتعلقة بمجال 2.1.1. التعلم وكذا في المجالات ذات العلاقة	2.1.1. Established basic, biomedical, clinical, and epidemiological and behavioral sciences related conditions, problems and topics.	2.1.1. Explain the essential facts and principles of general physiology including cell biology and genetic control of cellular functions. 2.1.2. Demonstrate sufficient knowledge of the main physiological subjects including central nervous system, special sense, endocrine system and endocrine, general metabolism, renal system, cardiovascular system, respiratory system, digestive

		system, nerve and muscle, blood and general and autonomic system.
2.1.2 التأثير المتبادل بين الممارسة المهنية و انعكاسها علي البيئة	2.1. 2. The relation between good clinical care of common health problems in Medical Physiology and the welfare of society.	2.1.4. State the impact of common problems related to medical physiology on the society and how good practice can improve these problems.
3 2.1 التطورات العلمية في مجال التخصص	2.1. 3. Up to date and recent developments in common problems related to Medical Physiology.	2.1.3. Enumerate the recent and update developments in the most important themes related to Medical Physiology
2.1.4 المبادئ الأخلاقية و القانونية للممارسة المهنية في مجال التخصص	2.1. 4. Ethical and medico-legal principles relevant to practice in Medical Physiology.	2.1.5. Mention the ethical and scientific principles of medical research methodology.
2.1.5 مبادئ و أساسيات الجودة في الممارسة المهنية في مجال التخصص	2.1. 5. Quality assurance principles related to the good medical practice in Medical physiology.	2.1.6. Mention the basics and standards of quality assurance to ensure good clinical practice in Medical physiology.
2.1.6 أساسيات وأخلاقيات البحث العلمي	2.1.6. Ethical and scientific basics of medical research.	2.1.7. Mention the ethical and scientific principles of medical research methodology.
2.2 المهارات الذهنية بانتهاء دراسة برنامج الماجستير يجب أن يكون الخريج قادرا على	2.2. Intellectual skills: Upon completion of the master program, the graduate must be able to do the following :	2.2. Intellectual skills:
2.2.1 تحليل و تقييم المعلومات في مجال التخصص و القياس عليها لحل المشاكل	2.2. A. Correlation of different relevant sciences in the problem solving and management of common diseases of Medical Physiology.	2.2.1. Correlate the relevant facts of relevant basic and clinically supportive sciences with reasoning, diagnosis and management of common problems of the Medical Physiology.

<p>2.2.2 حل المشاكل المتخصصة مع عدم توافر بعض المعطيات</p>	<p>2.2. B. Problem solving skills based on data analysis and evaluation (even in the absence of some) for common clinical situations related to Medical Physiology.</p>	<p>2.2.2. Interpret investigatory and analytic thinking “problem-solving” approaches to relevant situations related to Medical Physiology.</p>
<p>2.2.3 الربط بين المعارف المختلفة لحل المشاكل المهنية</p>	<p>2.2. C. Integrate different information to solve professional problems</p>	<p>2.2.4. Design and /or present a case or review (through seminars/journal clubs.) in one or more of common clinical problems relevant to the Medical Physiology.</p>
<p>2.2.4 إجراء دراسة بحثية و /أو كتابة دراسة علمية منهجية حول مشكلة بحثية</p>	<p>2.2. D. Demonstrating systematic approach in studying clinical problems relevant to the Medical Physiology.</p>	<p>2.2.7. Formulate management plans and alternative decisions situations in the field of Medical Physiology.</p>
<p>2.2.5 تقييم المخاطر في الممارسات المهنية</p>	<p>2.2. E. Evaluate risks imposed during the professional practice in Medical Physiology.</p>	<p>2.2.5. Participate in clinical or laboratory risk management activities as a part of clinical governance. 2.2.6. Present and defend his/her data in front of a panel of experts.</p>
<p>2.2.6 التخطيط لتطوير الأداء</p>	<p>2.2. F. Plan for professional improvement in Medical physiology.</p>	<p>2.2.3. Plan research projects.</p>
<p>2.2.7 اتخاذ القرارات المهنية في سياقات مهنية متنوعة</p>	<p>2.2. G. Take professional decisions in wide range of professional situations</p>	<p>2.2.2. Interpret investigatory and analytic thinking “problem-solving” approaches to relevant situations related to medical physiology.</p>
<p>المهارات المهنية 2.3: بانتهاء دراسة برنامج الماجستير يجب أن يكون الخريج قادرا على</p>	<p>2.3. Professional & Practical skills: Upon completion of the master program, the graduate must be</p>	<p>2.3. Professional & Practical skills:</p>

	able to do the following :	
<p>2.3.1 إتقان المهارات المهنية الأساسية و الحديثة</p>	<p>2.3. A. Demonstrate competency in all basic and some of the advanced professional skills in Medical physiology.</p>	<p>2.3.1. Perform basic lab skills essential to the course.</p> <p>2.3.4. Develop plans for performing experiments related to Medical Physiology.</p> <p>2.3.5. Counsel and educate students, technicians and junior staff, in the lab about conditions related to medical physiology; including handling of samples, devices, safety, and maintenances of laboratory equipment.</p> <p>2.3.6. Use information technology in some of the situations related to Medical Physiology.</p> <p>2.3.7. Provide health care services aimed supporting patient care, solving health problems and better understanding of the normal structure and function.</p>
<p>2.3.2 كتابة و تقييم التقارير المهني</p>	<p>2.3. B. Write and evaluate/appraise professional reports</p>	<p>2.3.8. Write competently and evaluate reports for situations related to the field of Medical physiology.</p>
<p>2.3.3. تقييم الطرق و الأدوات القائمة في مجال التخصص</p>	<p>2.3. C. Evaluate methods and existing tools used in Medical physiology.</p>	<p>2.3.2. Interpret non-invasive/invasive procedures/experiments.</p>

		2.3.3. Use instruments and devices in evaluation of different body functions.
2.4 المهارات العامة و المنتقلة بانتهاء دراسة برنامج الماجستير يجب أن يكون الخريج قادرا على	2.4. General and transferable skills: Upon completion of the master program, the graduate must be able to do the following:	2.4. General and transferable skills
2.4.1 التواصل الفعال بأنواعه المختلفة	2.4. A. Demonstrate efficient communication skills using all sorts	2.4.8. Provide information using effective nonverbal, explanatory, questioning, and writing skills. 2.4.10. Demonstrate a commitment to ethical principles of scientific research. 2.4.11. Demonstrate respect, sensitivity and responsiveness to patients' culture, age, gender and disabilities. 2.4.9. Select and use appropriate education methods and materials in the field of Medical Physiology.
2.4.2 استخدام تكنولوجيا المعلومات بما يخدم الممارسة المهنية	2.4. B. Use information technology to improve professional practice	2.4.6. Use information technology to manage information, access on-line medical researches; to support his/her education.
2.4.3 التقييم الذاتي وتحديد احتياجاته التعليمية الشخصية	2.4. C. Demonstrate skills of self-evaluation and identification of personal learning needs	2.4.1. Perform practice-based improvement activities using a systemic methodology (share in audits and risk management activities and use logbooks).

<p>2.4.4 استخدام المصادر المختلفة للحصول على المعلومات و المعارف</p>	<p>2.4. D. Use different sources of information to get data</p>	<p>2.4.3. Collect and verify data from different sources. 2.4.4. Analyze and interpret data. 2.4.5. Appraise evidence from scientific studies.</p>
<p>2.4.5 وضع قواعد ومؤشرات تقييم أداء الآخرين</p>	<p>2.4. E. Demonstrate capability to put roles and indicators for performance evaluation and appraisal</p>	<p>2.4.2. Facilitate learning of students, lab technical staff and other professionals including their evaluation and assessment.</p>
<p>2.4.6 العمل في فريق ، وقيادة فرق في سياقات مهنية مختلفة</p>	<p>2.4. F. Work in a team as well as being able to work as a team leader in variable professional situations</p>	<p>2.4.7. Work effectively with others as a member or leader of a research group and/or a health care team.</p>
<p>2.4.7 اداره الوقت بكفاءه</p>	<p>2.4. G. Demonstrate skills of effective time management</p>	<p>2.4.12. Work effectively in relevant academic and/or health care delivery settings and systems including good administrative and time management. 2.4.13. Practice cost-effective health care and resource allocation that does not compromise quality of care. 2.4.14. Partner with health care managers and health care providers to assess, coordinate, and improve health care and predict how these activities can affect system performance.</p>
<p>2.4.8 التعليم الذاتى والمستمر</p>	<p>2.4. H. Demonstrate Skills of self and continuous learning</p>	<p>2.4.6. Use information technology to manage information, access on-line medical information; and</p>

		support his/her education.
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**Date of approval of the last
06/03/2023 update:**

Merhan M. Ragy

Annex (3): Courses

Course Specifications of Medical Physiology

1st Part of Master Program of Medical Physiology

2022-2023

University: Minia

Faculty: Medicine

Department: Medical Biochemistry

1. Course Information		
<ul style="list-style-type: none"> • Academic Year/level: 1st part of MSc in Medical Physiology 	<ul style="list-style-type: none"> • Course Title: Medical Biochemistry 	<ul style="list-style-type: none"> • Code: PY100
<ul style="list-style-type: none"> • Number of teaching hours: Lectures: 50 hours; 2 hours/week for 25 weeks Practical: 20 hours; 1 hours/week for 20 weeks 		
2. Overall Aims of the course	<i>By the end of the course the student must be able to:</i>	

	<ol style="list-style-type: none"> 1. Provide the postgraduate student with the medical Knowledge and skills essential for the practice of specialty and necessary to gain. 2. Understand all molecular basics and diseases. 3. know different molecular techniques and their advanced applications. 4. Understand and use the research tools including internet and different laboratory equipment. 5. Know retrieving the literature and understanding the evidence-based medicine 6. Maintain learning abilities necessary for continuous medical education. 7. Maintain research interest and abilities.
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3. Intended learning outcomes of course (ILOs): <i>Upon completion of the course, the student should be able to:</i>	
A. Knowledge and Understanding	<p>The student finishes the course; he will be able to:</p> <ol style="list-style-type: none"> A1. Illustrate various metabolic processes of carbohydrate, lipid and protein A2. Describe role of minerals and hormones and Vitamins in metabolism. A3. Interpret Various metabolic diseases and their diagnosis A4. List the role of enzymes in the chemical reactions in the body and its diagnostic importance. A5. Discuss types of gene therapy and its therapeutic effect. A.6. Describe the metabolism of hemoglobin and nucleic acids. A.7 Explain xenobiotics and their detoxification. A.8 Explain principles, methodologies, tools and ethics of scientific research.
B. IntellectualSkills	<ol style="list-style-type: none"> B.1. Analyze of different diseases to reach a final diagnosis. B.2.Solve problems associated with metabolic diseases. B.3. Integrate metabolic pathways with diseases
C. Professional and Practical Skills	<ol style="list-style-type: none"> C.1. Organize groups, as a leader or as a colleague. C.2. Practice willingly the presentation skills through the attendance and participation in scientific activities.

D. General and transferable Skills	D.1. Be aware of the advanced biomedical information to remain current with advances in knowledge and practice (self-learning). D.2. Prepare for medical progress by having advanced medical research studies		
4. Course Contents			
Topic	Lecture hours/week	Practical/Clinical hours/week	Total No. of hours hours/week
Carbohydrate metabolism	6	2	8
Lipid metabolism	6	2	8
Protein metabolism	6	2	8
Nucleotide metabolism (Purines and pyrimidine metabolism)	6	2	8
Integration of metabolism	6	2	8
Minerals	4	-	2
Hormone signaling	3	2	5
Vitamins	3	1	4
Free radicals, Antioxidants & Metabolism of Xenobiotics	2	1	5
Enzymes	4	2	4
Hemoglobin metabolism	2	2	4
Gene therapy	2	2	6
Total	50	2 0	7 0
5. Teaching and Learning methods:	5.1-Lectures & discussions. 5.2-Assignments 5.3-Attending and participating in scientific conferences and workshops to acquire the general and transferable skills needed		
6. Teaching and Learning Methods for students with limited Capacity:	Additional lectures, adjusting time and place of lectures according to their schedule and capacity		
7. Student Assessment			
A. Student Assessment Methods	1- Written exam to assess the capability of the student for assimilation and application of the knowledge included in the course. 2-Oral exam to assess the student intellectual and communication skills regarding basic knowledge and understanding of the course topics, and to help the teaching staff to evaluate the % of achievement of the intended learning outcomes of the course 3- Practical exam to assess the student's ability to identify different methods of identification of different chemical substances by using biochemical methods		

B. Assessment Schedule (Timing of Each Method of Assessment)	<ul style="list-style-type: none"> • Assessment 1: one written exam by the end of the course • Assessment 2: Oral exam, after the written exam • Assessment 3: Practical exam • Formative only assessment: log book.
C. Weighting of Each Method of Assessment	<ul style="list-style-type: none"> • Log book: required for the entry of written exam • Written exam: 120 (40 %) • Practical exam: 90 (30%) • Oral exam: 90 (30 %) • Total: 300 (100%)
8. List of References	
A. Course Notes/handouts	<ul style="list-style-type: none"> • Lectures notes are prepared in the form of a book authorized by the department.
B. Essential Books	<ul style="list-style-type: none"> • Harper's Biochemistry, Robert K. Murray, Daryl K. Granner, Peter A. Mayes, and Victor W. Rodwell (30th edition, 2010)
C. Recommended Text Books	<ul style="list-style-type: none"> • Lubert Stryer, Biochemistry • Lehninger, Biochemistry • Lippincott, Biochemistry
D. Periodicals, websites	<ul style="list-style-type: none"> • To be determined and updated during the course work. • Websites: <ul style="list-style-type: none"> • 1-http://www.Medical Biochemistry.com. • Periodicals: <ul style="list-style-type: none"> • International journal of biochemistry) • Science

Course Coordinator/s:
Dr. Shereen Samy, Dr. Heba Marey

Head of Department:
Prof. Dr. Salama Rabie Abd El Rahiem

Date of last update & approval by department Council: 03/ 2023

مسمى المقرر	جزء اول ماجستير الفسولوجيا الطبية
كود المقرر	PY 200

جامعة/أكاديمية : .. المنيا

.....كلية / معهد: الطب
قسم : الكيمياء الحيوية

A. Matrix of Coverage of Course ILOs By Contents

Contents (List of course topics)	Intended Learning Outcomes (ILOs)			
	A. Knowledge & understanding	B. Intellectual Skills	C. Professional & Practical skills	D. General & Transferable Skills
	A	B	C	D
Carbohydrate metabolism •	A1 A3	B3	C2	
Lipid metabolism •	A1 A3	B2 B3	C2	
Protein metabolism •	A1 A3	B1 B2 B3	C1 C2	
Nucleotide metabolism •	A3 A6	B1	C1	

Integration of metabolism •	A4	B2		
Minerals •	A2	B1	C1	
Hormone signaling •	A2	B3	C2	
Vitamins •	A2	B1	C2	
Free radicals, Antioxidants & Metabolism of Xenobiotics •	A7	B1 B3		
Enzymes •	A4	B3	C1	
Hemoglobin metabolism •	A6	B2	C2	
Gene therapy •	A5	B	C	

B. Matrix of Coverage of Course ILOs by Methods of Teaching & Learning

Methods of Teaching & Learning	Intended Learning Outcomes (ILOs)			
	A. Knowledge & Understanding	B. Intellectual Skills	C. Professional & Practical skills	D. General & Transferable Skills
	A	B	C	D
Lecture	A1 A2 A3 A4 A5 A6	B2 B3		
Practical			C1 C2	
Presentation/seminar				D1 D2
Journal club				D1 D2

Training courses & workshops				D1 D2
Oral communication & Observation senior staff experience		B3 B1	C1 C2	D1 D2
Observation & supervision Seminars, Lectures, Hand on workshops	A1 A2 A3 A4 A5 A6	B2 B3		D1 D2

Date of last update & approval by department Council: 03/ 2023



C. Matrix of Coverage of Course ILOs by Methods of Assessment

Methods of Assessment	Intended Learning Outcomes (ILOs)			
	A. Knowledge & Understanding	B. Intellectual Skills	C. Professional & Practical skills	D. General & Transferable Skills
	A	B	C	D
Written exam	A1 A2 A3 A4 A5 A6 A7 A8	B1 B2 B3		
Oral Exam	A1 A2 A3 A4 A5 A6 A7	B2 B3	C1 C2	
Practical Exam				D1 D2
Logbook		B1 B2	C2	D2

Date of last update & approval by department Council: 03/ 2023

د/بدر



Blueprint of Medical Biochemistry Department Blueprint of Examination Paper

	Topic	Hours	Knowledge %	Intellectual %	% of topic	No of items per topic	Knowledge		Intellectual		Marks	Actual mark
							No of Items	Mark	No of Items	Mark		
1	Carbohydrate metabolism	6	70	30	12	4	3	10.8	1	3.6	14.4	14.5
2	Lipid metabolism	6	70	30	12	4	3	10.8	1	3.6	14.4	14.5
3	Protein metabolism	6	70	30	12	4	3	10.8	1	3.6	14.4	14.5
4	Nucleotide metabolism	6	75	25	12	3	2	9.6	1	4.8	14.4	14.5
5	Integration of metabolism	6	75	25	12	2	1	7.2	1	7.2	14.4	14.5

6	Minerals	4	80	20	8	2	1	4.8	1	4.8	9.6	9
7	Hormone signaling	3	75	25	6	2	1	3.6	1	3.6	7.2	7
8	Vitamins	3	75	25	6	2	1	3.6	1	3.6	7.2	7
9	Metabolism of Xenobiotics	2	70	30	4	2	1	2.4	1	2.4	4.8	5
10	Enzymes	4	75	25	8	2	1	4.8	1	4.8	9.6	9.5
11	Hemoglobin metabolism	2	70	30	4	2	1	2.4	1	2.4	4.8	5
12	Gene therapy	2	80	20	4	2	1	2.4	1	2.4	4.8	5
	Total	50			100						120	120

Date of last update & approval by department Council: 03/ 2023


Medical Physiology **Course Specifications of**
2nd Part of Master's Degree in Medical Physiology
2022-2023

University: Minia

Faculty: Medicine

Department: Medical Physiology

1. Course Information		
<ul style="list-style-type: none"> Academic Year/level: 2nd part of MSC in Medical Physiology 	<ul style="list-style-type: none"> Course Title: Advanced Medical Physiology 	<ul style="list-style-type: none"> Program Code: P Y 200
<ul style="list-style-type: none"> Number of teaching hours: Lectures: 4 h/week for 25 weeks, total of 50 lectures. Practical/clinical: 2 h/week for 25 weeks, total of 25 sessions. 		
2. Overall Aims of the course	<p style="text-align: center;"><i>By the end of the course the student must be able to:</i></p> <ul style="list-style-type: none"> Acquire satisfactory knowledge of the cellular basis of Medical Physiology, function of organ systems of the body and the control systems of the 	

	<p>human body and various body functions in health and disease.</p> <ul style="list-style-type: none"> • Acquire knowledge concerning molecular biology & the bases of genetics. • Develop satisfactory skills in techniques used for experimental physiology on isolated organs, tissues and whole animals.
<p>3. Intended learning outcomes of course (ILOs): <i>Upon completion of the course, the student should be able to:</i></p>	
<p>A. Knowledge and Understanding</p>	<p>A.1. Describe common clinical conditions and diseases related to Medical physiology.</p> <p>A.2. Mention the principles of:</p> <p>1- Cellular and Basic Physiology:</p> <ul style="list-style-type: none"> - Different fluid compartments in the human body. - Cell. -Transport across cell membrane. <p>2- Excitable tissues (nerve and muscle):</p> <ul style="list-style-type: none"> - Neuron. - Resting membrane potential. - Action potential. - Excitability and conduction. - Skeletal muscle morphology. - Excitation-Contraction Coupling. - Energy sources of metabolism. - Comparison between skeletal, smooth and cardiac muscle. <p>3- Physiology of ANS:</p> <ul style="list-style-type: none"> - Sympathetic and parasympathetic distribution and functions. - Chemical transmitters. <p>4- CNS:</p> <ul style="list-style-type: none"> - Receptors. - Sensation. - Synapses, types and properties. - Stretch reflex. - Motor functions pyramidal (cortical), extrapyramidal (basal ganglia) and cerebellar control of muscle movements. - Common neurological abnormalities- neuropathies, root lesions transection and hemi-section of the spinal cord. - Hypothalamus. Its role as a controller of nervous and hormonal functions.

- Labyrinth and vestibular functions. Equilibrium, vertigo, motion sickness. Tests of labyrinthine function.

- Role of vestibular apparatus and cerebellum in posture and maintenance of body balance.

- Speech, learning and memory.

- Sleep.

5- Special senses:

- Vision.

- Hearing.

- Smell and taste.

6- Cardiovascular system:

- Properties of cardiac muscle.

- Cardiac cycle and ECG.

- Heart sounds.

- Heart rate.

- Cardiac output.

- Arterial blood pressure.

- Microcirculations.

- Hemorrhage.

- Shock.

7- Blood:

- Plasma proteins.

- RBCs.

- Anemia.

- WBCs.

- Defense function of blood.

- Blood group and RH.

- Hemostasis.

- Bleeding disorders.

8- Gastrointestinal physiology:

- Gastrointestinal motility.

- Gastrointestinal secretion.

- Gastrointestinal hormones.

- Liver and biliary systems.

- Jaundice.

9- Respiration:

- Pulmonary functions.

- Gas transport between lungs and the tissues.

- Regulation of respiration.

- Respiratory adjustments in health and disease.

10- Renal system:

- Renal circulation.

	<ul style="list-style-type: none"> - Mechanism of urine formation. - Urine concentration and dilution. - Regulation of electrolyte balance, blood volume (ECF volume) and acid-base balance. - Endocrine functions of kidney. - Renal function tests. - Micturition. - Diuretics. <p>11- Endocrine system and Reproduction:</p> <ul style="list-style-type: none"> - Mechanism of hormonal action. - Pituitary gland. - Thyroid gland. - Calcium homeostasis. - Adrenal gland. - Glucose homeostasis. - Diabetes mellitus. <p>12- General metabolism and regulation of body temperature:</p> <ul style="list-style-type: none"> - Metabolic rate. - Basal metabolic rate. - Specific dynamic action. - O₂ debt. - Regulation of body temperature. - Fever. - Control of Food intake. - Obesity. - Starvation. <p>A.3. State update and evidence base Knowledge related to the Cellular and Basic Physiology:</p> <p>A.4. Memorize the facts and principles of the other relevant basic and clinically supportive sciences related to Medical Physiology.</p> <p>A.5. Mention the basics of quality assurance to ensure good professional skills in his field.</p> <p>A.6. Mention the ethical and scientific principles of medical research</p> <p>A.7. State the impact of common problems related to Medical Physiology on the society and how good practice can improve these problems.</p>
B. IntellectualSkills	<p>B.1. Correlate the facts of relevant basic and clinically supportive sciences with conditions and diseases of relevance to Medical Physiology</p> <p>B.2. Interpret an investigatory and analytic thinking (problem solving) approaches to conditions relevance to Medical Physiology.</p>

	<p>B.3. Design and present audits, cases, seminars in common problems related to Medical Physiology.</p> <p>B.4. Formulate management plans and alternative decisions in different situations in the field of Medical Physiology.</p>
<p>C. Professional and Practical Skills</p>	<p>C.1. Perform the following basic lab skills essential to the course:</p> <ul style="list-style-type: none"> •Isolated skeletal muscle and perfuse heart (rabbit & frog) experiments. •Recording normal arterial blood pressure, heart rates & ECG in human and experiment animals. •Effect of Autonomic drugs on intact frog heart. •Assessment of kidney functions as GFR, RBF and kidney tubular functions. •Spirometry. •Assessment of hemoglobin contents, bleeding time, prothrombin time, ESR, blood groups, blood hemolysis and blood. •Indirect method for measurement of metabolic rate and measurement of body temperature. <p>C.2. Use instruments and devices in evaluation of the conditions mentioned above in A.</p> <p>C.3. Perform the following non-invasive/invasive procedures/ experiments</p> <ul style="list-style-type: none"> •Isolated perfused heart (rabbit & frog) experiments. •Recording normal arterial blood pressure, heart rates & ECG in human and experiment animals (e.g. recording the effect of cholinergic and adrenergic drugs on blood pressure, heart rate, ECG). •Measurement of activity of the baroreceptors on sympathetic and parasympathetic nervous. •Assessment of kidney functions as GFR, RBF and kidney tubular functions. •Indirect method for measurement of metabolic rate and measurement of body temperature. <p>C.4. Write and evaluate of the following reports:</p>

	<p>•Applied electrophysiology, passage of ions through cell membranes.</p> <p>C.5. Develop and/or carry out plans for performing tests.</p> <p>C.6. Perform the following basic experiments in relating to basic sciences to be utilized in the research work: Cannulation-ECG recording-Cardiac perfusion.</p> <p>C.7. Practice different lab skills related to Medical Physiology including handling of samples, devices, safety and maintenance of laboratory equipment.</p> <p>C.8. Share in providing health care services aimed at solving health problems and better understanding of the normal structure and function.</p>
<p>D. General and transferable Skills</p>	<p>D.1. Perform practice-based improvement activities using a systematic methodology (audit, logbook)</p> <p>D.2. Appraises evidence from scientific studies.</p> <p>D.3. Participate in one audit or survey related to the course.</p> <p>D.4. Perform data management including data entry and analysis.</p> <p>D.5. Facilitate learning of junior students and other health care professionals.</p> <p>D.6. Maintain ethically sound relationship with others.</p> <p>D.7. Elicit information using effective nonverbal, explanatory, questioning, and writing skills.</p> <p>D.8. Provide information using effective nonverbal, explanatory, questioning, and writing skills.</p> <p>D.9. Work effectively with others as a member of a health care team or other professional group.</p> <p>D.10. Present a case.</p> <p>D.11. Write a report.</p> <p>D.12. Demonstrate respect, compassion, and integrity; a responsiveness to the needs of patients and society.</p>

	<p>D.13. Demonstrate a commitment to ethical principles when conducting research and experiments besides business practices.</p> <p>D.14. Work effectively in relevant health care delivery setting and systems.</p> <p>D.15. Practice cost-effective techniques and resource allocation that does not compromise quality of biomedical research.</p>
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4. Course Contents			
Topic	Lecture hours	Practical/Clinical Hours	Total No. of hours
ADVANCED MEDICAL PHYSIOLOGY			
1- General & cellular basis of physiology	3	2	5
2- Nerve and muscle.	5	4	9
3- Autonomic nervous system.	4	2	6
4- Central nervous system.	15	8	23
5- Special senses.	5	4	9
6- Cardiovascular system.	15	8	23
7- Blood.	5	4	9
8- Gastrointestinal system.	5	2	7
9- Respiration.	10	2	12
10- Kidney.	10	4	14
11- Endocrine and reproduction.	20	8	28
12- General metabolism and regulation of body temperature.	3	2	5
Total hours	100	50	150

5. Teaching and Learning methods:	<p>5.1. Lectures, Presentations, Seminars.</p> <p>5.2. Laboratory training.</p> <p>5.3. Oral communication & observation Senior staff experience.</p> <p>5.4. Observation & supervision Seminars, Lectures, Hand on workshops.</p>
6. Teaching and Learning Methods for students with limited Capacity:	<p>- Extra didactic (lectures, seminars, tutorial)</p> <p>- Extra laboratory work.</p>
7. Student Assessment	
A. Student Assessment Methods	<ul style="list-style-type: none"> • Logbook • Written exam

	<ul style="list-style-type: none"> • Practical exam • Oral exam
B. Assessment Schedule (Timing of Each Method of Assessment)	<ul style="list-style-type: none"> • Logbook: before the written exam • Written exam: at the end of the course • Practical exam: at the end of the course • Oral exam: after the written exam
C. Weighting of Each Method of Assessment	<ul style="list-style-type: none"> • Logbook: required for the entry of written exam • Written exam: 280 (40 %) • Practical exam: 200 (28.6 %) • Oral exam: 220 (31.4 %)
8. List of References	
A. Course Notes/handouts	<ul style="list-style-type: none"> • Lecture notes (Medical physiology books) by Staff Members of the Department of Medical physiology, Minia University
B. Essential Books	<ul style="list-style-type: none"> • Guyton AC, Hall JE: Textbook of Medical Physiology, 14th ed. Saunders, 2021. • William F. Ganong: Review of Medical Physiology, 26th Edition, McGraw-Hill Companies, 2019.
C. Recommended Text Books	<ul style="list-style-type: none"> • Gillian Pocock, Christopher D. Richards: Human Physiology the Basis of Medicine. Oxford core texts, 2006. • Robert M. Berne, Matthew N. Levy. Principles of Physiology. 3th edition on, Mosby, 2000. • Duane E. Haines: Fundamental Neuroscience. 2nd edition, Churchill Livingstone, 2002. • Michael Field, Carol Pollock, David Harris: The Renal System (basic science and clinical conditions). Churchill Livingstone, 2001. • Vander, Sherman, Luciano: Human Physiology (the mechanisms of body function), 8th edition, Mcgraw Hill, 2001. • Berne RM et al (editors): Physiology, 5th ed. Mosby, 2004. • Boron WF, Boulpaep EL (editors) Medical Physiology. Saunders, 2003. • McPhee SJ, Lingappa VR, Ganong WF: Pathophysiology of Disease. An Introduction to Clinical Medicine, 4th ed. McGraw-Hill, 2003. • Alberts B et al: Molecular Biology of the Cell, 4th ed.
D. Periodicals, websites	<ul style="list-style-type: none"> • American journal of physiology. • Journal of applied physiology. • Journal of clinical endocrinology and metabolism. • Physiological Review.

	<ul style="list-style-type: none">• European Journal of Physiology.• Journals of all Egyptian Universities of Medical physiology.
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Coordinator:

Dr. Wagdy Nashaat Habib

Head of Department:

Prof. Dr. Merhan Mamdouh Ragi

Date of last update & approval by department Council:06/03/2023

Merhan M. Ragi

نموذج رقم 11 أ

Advanced Medical Physiology	مسمى المقرر
P Y200	كود البرنامج

جامعة/أكاديمية: جامعة المنيا
كلية/معهد: كلية الطب

قسم: الفسيولوجيا الطبية

Methods of Teaching & Learning	A. Knowledge & Understanding	B. Intellectual Skills	C. Professional & Practical skills	D. General & Transferable Skills
Lectures	X	x		
Presentations			x	x
Seminars			x	x
Laboratory training		x	x	x
Oral communication & Observation senior staff experience	x	x	x	x
Observation & supervision Seminars, Lectures, Hand on workshops	x	x	x	

This matrix was last updated & approved by department Council:
06/03/2023

C. Matrix of Coverage of Course ILOs by Methods of Assessment

Methods of Assessment	Intended Learning Outcomes (ILOs)			
	A. Knowledge & Understanding	B. Intellectual Skills	C. Professional & Practical skills	D. General & Transferable Skills
Written exam	x	X		
Oral Exam	x	X		X
Practical Exam			x	
Logbook	x	X	x	X

This matrix was last updated & approved by department Council:
06/03/20

Courses	Program Intended Learning Outcomes (ILOs)																					
	2.3. Professional & Practical skills								2.4 General & Transferable Skills													
	2.3 .1	2.3 .2	2.3 .3	2.3 .4	2.3 .5	2.3 .6	2.3 .7	2.3 .8	2.4 .1	2.4 .2	2.4 .3	2.4 .4	2. 4. 5	2. 4. 6	2. 4. 7	2.4 .8	2.4. 9	2.4 .10	2.4 .11	2.4.12	2.4 .13	2.4.14
1.Basic Science, Biochemistry		x	x					x	x							x	x			X	x	
2.Advanced Medical Physiology	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	X	X	x	x

This matrix was last updated & approved by department Council:

06/03/2

023



Mervan M. Ragy

Blueprint for 2nd part MSc Medical Physiology Exam Paper

	Topic	Hours	% of topic	Marks	Actual marks
1	General & cellular basis of physiology	3	3%	8.4	10
2	Nerve and muscle.	5	5%	14	14
3	Autonomic nervous system.	4	4%	11.2	12
4	Central nervous system.	15	15%	42	42
5	Special senses.	5	5%	14	14
6	Cardiovascular system.	15	15%	42	42
7	Blood.	5	5%	14	15
8	Gastrointestinal system.	5	5%	14	15
9	Respiration.	10	10%	28	28

10	Kidney.	10	10%	28	28
11	Endocrine and reproduction.	20	20%	56	50
12	General metabolism and regulation of body temperature.	3	3%	8.4	10
	Total	100	100%	280	280

Coordinator:

Dr. Wagdy Nashaat Habib

Head of Department:

Prof. Dr. Merhan Mamdouh Ragi

Date of last update & approval by department

Council:

06/03/20

23

Merhan M. Ragi