



كلية الطب
جامعة أسيوط



Faculty of Medicine
Quality Assurance Unit

**MASTER (M.SC.) DEGREE PROGRAM AND COURSES
SPECIFICATIONS FOR *Pharmacology***

(According to currently applied Credit point bylaws)

*Department of Pharmacology
Faculty of medicine
Assiut University
2022-2023*

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Master degree of Pharmacology

A. Basic Information

- + Program Title: Master Degree of Pharmacology
- + Nature of the program: Single.
- + Responsible Department: Department of Pharmacology
- + Program Academic Director (Head of the Department):
Prof. Hanan Sayed Mohamed Farghaly
- + Coordinator (s):
 - Principle coordinator: Dr. Mohamed Salem
 - Assistants coordinators:
Dr. Abeer M.R.Hussein.
- + Internal evaluators: Prof Dr. Hussin El Betar
- + External evaluator: Prof. Hassan Helaly Ali Ahmed
- + Date of Approval by the Faculty of Medicine Council of Assiut University: 23-9-2014
- + Date of most recent approval of program specification by the Faculty of Medicine Council of Assiut University: 27-11-2022
- + Total number of courses: 2 courses + 1 elective course

B. Professional Information

1- Program aims

Pharmacology is the science which seeks to explain how drugs work and what the body does to the drug. This can be at the molecular, cellular, tissue or whole body level; therefore the pharmacologist will need to understand aspects of several core sciences – chemistry, biochemistry, molecular, cell biology, physiology and pathology. Taken these together makes Pharmacology a strong candidate for the ideal life' science.

The aims of the program are:

- A. to provide sufficient-rooted knowledge of the essential basic principles of chemistry, biochemistry, physiology, biology and the physical sciences applicable to pharmacology
- B. to develop an ability to apply these principles to resolve specific common problems in pharmacology.
- C. to support acquisition of practical skills in experimental design, procedures and the analysis of experimental data
- D. to promote development of personal and interpersonal communication skills and the ability to exploit modern information technology.
- E. to work efficiently with health team in the society.
- F. To encourage a sense of curiosity and enquiry, and an enthusiasm for basics and principle knowledge of pharmacology.
- G. To enable candidates to keep with international standards of pharmacologists and be able to learn students and colleagues in work team.
- H. to participate in the research design according to the different available tools.
- I. By the end of Master degree period candidates should be able to:
 - Share in writing scientific proposal to solve a research problem (s).
 - Start professional careers as a pharmacologist.

- Pursue higher studies and subspecialties.
- Criticize the published scientific research and do their own.
- Apply pharmacological knowledge efficiently to compact with raised therapeutic failure of certain drugs and drug/drug interaction.

**2- Intended learning outcomes (ILOs)
*for the whole program:***

2- Intended learning outcomes (ILOs) *for the whole program:*

2/1 Knowledge and understanding:

- A. Explain the essential facts and principles of relevant basic sciences including, the principles of pharmacology and biochemistry, or the principles of pharmacology and Physiology or the principles of pharmacology and microbiology related to Pharmacology.
- B. Mention essential facts of supportive sciences including principles of Pharmacology and physiology or the principles of Pharmacology and biochemistry or the principles of Pharmacology and microbiology related to basic, systematic and experimental pharmacology.
- C. Demonstrate sufficient essential knowledge of the main subjects related to Pharmacology; e.g. pharmacokinetics and pharmacodynamics.
- D. Give the recent and update developments in the most important themes related to pharmacology ; e.g. pharmacogenetics.
- E. Mention the basic ethical and medicolegal principles that should be applied in practice and are relevant to the field of pharmacology.
- F. Mention the basics and standards of quality assurance to ensure good practice in the field of pharmacology.

- G. Mention the ethical and scientific principles of medical research methodology.
- H. State the impact of common problems related to the field of pharmacology on the society and how good practice can improve these problems, particularly in pharmacokinetic and pharmacogenetic studies.

2/2 Intellectual outcomes

- A- Correlate the relevant facts of relevant basic and clinically supportive sciences with reasoning, diagnosis and management of common problems of the pharmacology.
- B- Demonstrate an investigatory and analytic thinking approach (problem solving) to common clinical or practical situations related to pharmacology.
- C- Design and /or present a case or review (through seminars/journal clubs.) in one or more of common themes or problems relevant to the pharmacology field.
- D- Formulate management plans and alternative decisions in different situations in the field of the pharmacology.

2/3 Skills

2/3/1 Practical skills

- A. Demonstrate competently relevant laboratory skills related to pharmacology.
- B. Use the up to date technology for the conditions related to pharmacology.
- C. Develop plans for performing experiments related to pharmacology
- D. Carry out common experiments related to pharmacology
- E. Counsel and educate students, technicians and junior staff, in the lab about conditions related to pharmacology; including handling of samples, devices, safety and maintenance of laboratory equipments.
- F. Use information technology in some of the situations related to pharmacology.

- G. Share in providing health care services aimed supporting patient care, solving health problems and better understanding of the normal structure and function.
- H. Write competently all forms of professional reports related to the pharmacology (lab reports, experiments reports,).

2/3/2 General skills

Including:

- Practice-based Learning and Improvement
- Interpersonal and Communication Skills
- Professionalism
- Systems-based Practice

• Practice-Based Learning and Improvement

- A- Perform practice-based improvement activities using a systematic methodology (share in audits and risk management activities and use logbooks).
- B- Appraises evidence from scientific studies.
- C- Conduct epidemiological Studies and surveys.
- D- Perform data management including data entry and analysis and using information technology to manage information, access on-line medical information; and support their own education.
- E- Facilitate learning of students, lab technical staff and other health care professionals including their evaluation and assessment.

Interpersonal and Communication Skills

- F- Maintain therapeutic and ethically sound relationship with patients, their families, lab technical staff and other health professionals.
- G- Elicit information using effective nonverbal, explanatory, questioning, and writing skills.
- H- Provide information using effective nonverbal, explanatory, questioning, and writing skills.
- I- Work effectively with others as a member of a team or other professional group.

Professionalism

- J- Demonstrate respect, compassion, and integrity; a responsiveness to the needs of patients health and society.
- K- Demonstrate a commitment to ethical principles including provision or withholding of clinical care, confidentiality of patient information, informed consent, and business practices.
- L- Demonstrate sensitivity and responsiveness to others' culture, age, gender, and disabilities.

Systems-Based Practice

- M- Work effectively in relevant academic and health care delivery settings and systems including good administrative and time management.
- N- Adopt cost-effective practice and resource allocation that does not compromise quality of services.
- O- Assist patients in dealing with system complexities.

3- Program Academic Reference Standards (ARS) (Annex 2)

Academic standards for master degree in Basic *Pharmacology*

Assiut Faculty of Medicine developed master degree programs' academic standards for different academic specialties.

In preparing these standards, the General Academic Reference Standards for post graduate programs (GARS) were adopted. These standards set out the graduate attributes and academic characteristics that are expected to be achieved by the end of the program.

These standards were approved by the Faculty Council on 17-6-2009. These standards were revised and approved without changes by the Faculty Council on 23-9-2014. These standards were recently revised and reapproved without changes by the Faculty Council on 27-11-2022.

4- Program External References (Benchmarks)

1. ACGME (Accreditation Council for Graduate Medical Education).
http://www.acgme.org/acWebsite/navPages/nav_Public.asp
2. University of Bath: Program Specification: Master of Pharmacology.
www.mpharmacol_specification_2008.Pdf.
3. University of Cambridge: Program Specifications for MPhil in MPhil Pharmacology.
<http://www.postgraduatesearch.com/mphil/pharmacology/uk/study/postgraduate-browse.htm>

5. Program Structure and Contents

A. Duration of program: 3 – 5 years

B. Structure of the program:

Total number of points: 180 (20 out of them for thesis).

Didactic 34 (18.9 %), practical 126 (70 %), thesis 20(11.1).

First part

Didactic 8 (20%), practical 30 (75 %), elective course 2(5%)
total 40.

Second part

Didactic 24 (20%) practical 96 (80 %) total 120

Total courses 160 CP

Compulsory courses: 98.9%

Elective course: 2 credit point: 1.1%

	Points	% from total
▪ Basic science courses	18	10%
As Medical statistics or what chosen by the candidate and the supervisors	2	1.1%
▪ Speciality courses	140	77.8%
▪ Others (Computer, ...)	-	-
▪ Field training	-	-
Thesis	20	11.1%

C. Program Time Table

A. Duration of program 3 years maximally 5 years divided

into

○ Part 1: (One year)

Program-related basic science courses and ILOs + elective courses

Students are allowed to sit the exams of these courses after 12 months from applying to the M Sc degree.

One elective course can be set during either the 1st or 2nd parts.

- **Thesis**

- For the M Sc thesis;**

- MSc thesis subject should be officially registered within 6 months from application to the MSc degree,

- Discussion and acceptance of the thesis could be set after 12 months from registering the MSc subject;

- It should be discussed and accepted before passing the second part of examination)

- **Part 2 (2 years)**

- Program –related speciality courses and ILOs

- Students are not allowed to sit the exams of these courses before 3 years from applying to the MSc degree.

- The students pass if they get 50% from the written exams and 60% from oral and clinical/practical exams of each course and 60% of summation of the written exams, oral and clinical/practical exams of each course

- Total degrees 1600 marks.

- 400 marks for first part

- 1200 for second part

Written exam 40% - 70%.

Practical and oral exams 30% - 60%.

D. Curriculum Structure: (Courses):

 courses of the program:

Modules/ Units delivering courses and student work load list	Course Code	Core Credit points		
		Didactics	training	total
First Part				
Basic science courses (one of these 2 courses) Pharmacology & Biochemistry Or *Pharmacology & Physiology Or *Pharmacology & Microbiology	PHA204 Or PHA203 Or PHA207	8		8
Elective courses*	2CP			
Practical training and scientific activities				
A. Practical training in compulsory academic basic course (10 CP)	PHA204 Or PHA203 Or PHA207		10	10
B. Practical training in Speciality course (20 CP)	PHA206A		20	20
Total of the first part		10	30	40
Second Part				
	Speciality courses Speciality practical Work			
Speciality Courses (Advanced Pharmacology) Unit 1: -General Pharmacology. Unit 2: Advanced Pharmacology.	PHA206A	24		24
Training and practical activities in Pharmacology(96 CP)	PHA206A		96	96
Total of the second part		24	96	120
Thesis	20			
Total of the degree	180			

Didactic (lectures, seminars, tutorial)

* Elective courses can be taken during either the 1st or 2nd parts.

Student work load calculation:

Work load hours are scheduled depending on the type of activities and targeted competences and skills in different courses

Elective Courses#:

- Medical statistics.
- Evidence based medicine.
- Medicolegal Aspects and Ethics in Medical Practice and Scientific Research
- Quality assurance of medical education
- Quality assurance of clinical practice.
- Hospital management

One of the above mentioned courses are prerequisites for fulfillment of the degree.

Thesis:

20 CP are appointed to the completion and acceptance of the thesis.

Pharmacology course

Units' Titles' list	% from total	Level (Year)	Core Credit points		
			Didactic	training	Total
Unit 1: Basic Pharmacology	50%	1,2,3	12	58	70
Unit 2: Advanced Pharmacology	50%	1,2,3	12	58	70
			24	116	140

6. Courses Contents (Annex 1)

The competency based objectives for each course/module/rotation are specified in conjunction with teaching/training methods, requirements for achieving these objectives and assessment methods.

See Annex 1 for detailed specifications for each course/module

Annex 6 II: Program Matrix

7-Admission requirements

 **Admission Requirements (prerequisites) if any :**

I. General Requirements:

- a. MBChB Degree from any Egyptian Faculties of Medicine
- b. Equivalent Degree from medical schools abroad approved by the Ministry of Higher Education
- c. One year appointment within responsible department (for non Assiut University based registrars)

II. Specific Requirements:

- Fluent in English (study language)

VACATIONS AND STUDY LEAVE

The current departmental policy is 2 weeks before examination.

FEES:

As regulated by the postgraduate studies rules and approved by the faculty vice dean of post graduate studies and the faculty and university councils.

8-Progression and completion requirements

- ✚ Examinations of the first part could be set at 12 months from registering to the MSc degree.
- ✚ Examination of the second part cannot be set before 3 years from registering to the degree.
- ✚ Discussion of the MSc thesis could be set after 1 year from officially registering the MSc subject before setting the second part exams.
- ✚ The minimum duration of the program is 3 years.

The students are offered the degree when:

1. Passing the exams of all basic science, elective and speciality courses of this program as regulated by the post graduates approved rules by the faculty council.
2. Completing all scheduled CP and log book (minimum 80%).
3. Discussion and acceptance of the MSc_thesis.

9- Program assessment methods and rules (Annex IV)

Method	ILOs measured
Written examinations: Structured essay questions Objective questions MCQ Problem solving	K & I
Practical: OSPE	K ,I, P &G skills
Structured oral	K ,I &G skills
Logbook assessment	All
Research assignment	I &G skills

Weighting of assessments:

Courses		Degrees			
First Part	Course code	Written Exam	Oral Exam	Practical / Exam	Total
Basic science courses:					
Pharmacology & Biochemistry OR	PHA204	250	100	50	400
Pharmacology & Physiology OR	PHA203	250	100	50	400
Pharmacology & Microbiology	PHA207	250	100	50	
Second Part					
Speciality Course :Advanced Pharmacology	PHA206A	800	250	150	1200
-General Pharmacology Paper 1		200			
-General Pharmacology Paper 2		200			
-Advanced Pharmacology		200			
-Advanced Pharmacology		200			
Total		800	250	150	1200

*** 25% of the oral exam for assessment of logbook**

***Advanced Pharmacology Course**

Units' (Module) Titles' list	% from total Marks	Degrees			
		Written Exam	Oral Exam *	Practical / Clinical Exam	Total
Unit 1: General Pharmacology	50%	400	125	75	600
Unit 2: Advanced Pharmacology	50%	400	125	75	600
Total No. of Units (Modules):	2	800	250	125	1200

* 25% of the oral exam for assessment of logbook

400 marks for first part

1200 for second part

Written exam 62 and 65% (according to the part examined).

Practical and oral exams 34 % (550 marks)

Elective course 100

+ Examination system:

➤ **First part:**

Written exam two papers 2 hours each in Basic Pharmacology.& Biochemistry or Basic Pharmacology.& Physiology or Pharmacology &Microbiology + Oral exam +Practical exam

➤ **Second part:**

Written exam four papers 3 hours for each in Advanced Pharmacology (General Pharmacology paper 1, General Pharmacology paper 2, Paper 3 Advanced Pharmacology and Paper 4 Advanced Pharmacology)+ Oral exam+ practical exam

➤ **Elective courses**

- Written exam one paper 1 hour in Elective course + Oral & Practical exam

10-Program evaluation

#Annex 5 contains evaluation templates and reports.

11-Declaration

We certify that all of the information required to deliver this program is contained in the above specification and will be implemented. All course specifications for this program are in place.

Contributor	Name	Signature	Date
▪ Program Principle Coordinator:	Dr. Abeer M.R. Huusein		12/2021
▪ Head of the Responsible Department (Program Academic Director):	Prof. Hanan Sayed Mohamed Farghaly		12/2021

Annex 1, Specifications for Courses / Modules

Annex 1: specifications for courses

Course 1 Basic pharmacology and physiology.

Name of department: Medical pharmacology

Faculty of medicine

Assiut University

▪ **2021-2022**

I. Course data

- ✚ Course Title: Basic pharmacology and physiology.
- ✚ Course code: PHA203
- ✚ Speciality: Pharmacology

- ✚ Number of credit points: Didactic 8 (44.4%) practical 10 (55.6%)total 18

- ✚ Department (s) delivering the course: Medical pharmacology department in conjunction with medical Physiology department.
- ✚ Coordinator (s):
 - Course coordinator: Dr. Abeer M.R. Hussein
- ✚ Assistants Coordinator (s):
 - As approved by Departmental council.

- ✚ Date last reviewed: 12/2021

- ✚ General requirements (prerequisites) if any : none

- ✚ Requirements from the students to achieve course ILOs are clarified in the joining log book.

2. Course Aims

1. To gain an essential basic knowledge, facts and skills of human physiology which are appropriate to principles of pharmacology

3. Course intended learning outcomes (ILOs):

A-Knowledge and understanding

<i>ILOs</i>	<i>Methods of teaching/ Learning</i>	<i>Methods of Evaluation</i>
<p>A. Describe the basic concepts and detailed principles of physiology related to principles of pharmacology including the following:</p> <ul style="list-style-type: none"> • Neurophysiology. • Physiology of autonomic nervous system, cardiovascular system, respiratory system, gastrointestinal system, Lymphatic System, • Nutrition and Metabolism. • Reproductive System. 	<p>Lectures.</p> <p>-Practical teaching.</p> <p>-Seminars.</p>	<p>Written exam.</p> <p>-Oral exam.</p> <p>Practical Exam</p>
<p>B. Mention the physiological factual basics and principles essential to the principles of pharmacology.</p>	<p>Lectures.</p> <p>-Practical teaching.</p> <p>-Seminars.</p>	<p>Written exam.</p> <p>-Oral exam.</p> <p>Practical Exam</p>
<p>C. State update and evidence based Knowledge related to the principles of pharmacology and physiology.</p>	<p>Lectures.</p> <p>-Practical</p>	<p>-Written exam.</p> <p>-Oral exam.</p> <p>Practical Exam</p>

	teaching. -Seminars.	
D. Mention the basic ethical and medicolegal principles relevant to principles of pharmacology and physiology .	Lectures.	Written exam.
E. Explain the ethical and scientific principles of medical research.	Lectures.	

C. Intellectual outcomes

<i>ILOs</i>	<i>Methods of teaching/ learning</i>	<i>Methods of Evaluation</i>
A. Correlates the facts of physiology with conditions relevance to principles of pharmacology.	Lectures. -Practical teaching. -Seminars.	-Written exam. -Oral exam. Practical Exam
B. Demonstrate an investigatory and analytic thinking (problem solving) approaches to conditions relevance to principles of pharmacology and physiology.	Lectures. -Practical teaching. -Seminars	Written exam. -Oral exam. Practical Exam
C. Design and present audits, cases, seminars in common problems related to principles of pharmacology and physiology.	Lectures. -Practical teaching. -Seminars	Written exam. -Oral exam. Practical Exam

C. Practical skills

ILOs	Methods of teaching/ learning	Methods of Evaluation
A. Perform the principles of the following basic lab skills essential to Principles of pharmacology and physiology: <ul style="list-style-type: none"> • Preparation of different physiological circumstances and solutions. • Experiments on isolated organs and effect of different drugs on them. • plans for performing physiological tests. • Instrumental and devices use in experiment; evaluation of blood pressure, analgesia etc . 	Lectures. -Practical teaching. -Seminars.	-Written exam. -Oral exam. Practical Exam
B. Use information technology to support decisions in common situations related to principles of pharmacology and physiology.	-	Log book

D. General Skills

Practice-Based Learning and Improvement

ILOs	Methods of teaching/ Learning	Methods of Evaluation
A. Perform practice-based improvement activities using a systematic methodology(audit, logbook)	Observation and supervision discussion	Log book Portfolio
B. Appraise evidence from scientific studies.		

Interpersonal and Communication Skills

ILOs	Methods of teaching/ learning	Methods of Evaluation
D. Maintain ethically sound relationship with others.	Discussion Oral and written communication.	Logbook Portfolio
E. Elicit information using effective nonverbal, explanatory, questioning, and writing skills.		
F. Provide information using effective nonverbal, explanatory, questioning, and writing skills.		

Professionalism

ILOs	Methods of teaching/ learning	Methods of Evaluation
G. Demonstrate sensitivity and responsiveness to others.	observation	logbook

Systems-Based Practice

ILOs	Methods of teaching/ learning	Methods of Evaluation
H. Assist others in dealing with system complexities.	-Observation -Senior staff experience	--360o global rating

4. Course contents (topic s/modules/rotation Course Matrix

Time Schedule: First Part

Topic	Covered ILOs			
	Knowledge	Intellectual	Practical skill	General Skills
Neurophysiology	A-E	A-C	A,B	A-H
Autonomic nervous system	A-E	A-C	A	A-H
Cardiovascular system	A-E	A-C	A	A-H
Respiratory system	A-E	A-C	A,B	A-H
Gastrointestinal system	A-E	A-C	A	A-H
Lymphatic System	A-D	A-C	-	A-H
Nutrition and Metabolism	A-C	A-C	A	A-H
Reproductive System	A-D	A-C	A	A-H

5. Course Methods of teaching/learning:

- 1-Lectures_
- 2-Seminars_
- 3-Practical teaching
- 4- Observation and supervision
- 5- Written & oral communication
- 6- Senior staff experience

6. Course Methods of teaching/learning: for students with poor achievements

1. Extra didactic (lectures, seminars, tutorial)
2. Extra Practical teaching

7. Course assessment methods:

- i. Assessment tools: Practical examination
 - Oral examination
 - Written examination
 - Logbook
- ii. Time schedule: At the end of the first part
- iii. Marks: 400

8. List of references

Lectures notes

- Course notes
- Staff members print out of lectures and/or CD copies
- Medical physiology books by Staff Members of the Department of Medical physiology -Assiut University.

ii. Essential books

- Guyton AC, Hall JE: Textbook of Medical Physiology, 14th ed. Saunders, 2021.

iii. Recommended books

- Gillian Pocock, Christopher D. Richards: Human Physiology the Basis of Medicine. Oxfordcore texts, 2006.

iv. Periodicals, Web sites, ... etc

➤ Periodicals,

- American journal of physiology.
- Journal of applied physiology.

v. others : None

9. Signatures

Course Coordinator: Mohamed Salem Dr. Abeer M.R. Hussein	Head of the Department: Prof. Hanan Sayed Mohamed
Date: 1-2022	Date: 1-2022

Course 1- Basic course; the Principles of Pharmacology and Biochemistry

**Name of department: medical Pharmacology
Faculty of medicine
Assiut University
2021-2022**

1. Course data

- + Course Title: the Principles of Pharmacology and Biochemistry.**
- + Course code: PHA204.**
- + Speciality: Pharmacology.**
- + Number of credit points: Didactic 8 (44.4%) practical 10 (55.6%) total 18**

- + Department (s) delivering the course: medical Pharmacology department in conjunction with medical Biochemistry department.**

- + Coordinator (s):**
 - Course coordinators: as approved by Departmental council.**

- + Date last reviewed: 12-2021**
- + General requirements (prerequisites) if any : None**
- + Requirements from the students to achieve course ILOs are clarified in the joining log book.**

2. Course Aims

1. To gain a basic principles, facts and skills of biochemistry of human body systems which are essential and appropriated to principles of pharmacology for reasoning and management of related situations in pharmacology field.

3. Course intended learning outcomes (ILOs):

A-Knowledge and understanding

<i>ILOs</i>	<i>Methods of teaching/ Learning</i>	<i>Methods of Evaluation</i>
<p>A. Describe the basic concepts and principles of medical biochemistry which are essential and appropriate to the principles of pharmacology including the following:</p> <ul style="list-style-type: none"> ➤ Metabolism of carbohydrate, Fat and protein. ➤ Hormones. ➤ Receptors and 2nd messengers ➤ Mineral metabolism. ➤ molecular biology& the bases of genetics. 	<p>-Lectures -Literatures -Different search engines & Data base</p>	<p><i>written and oral examinations, Log book</i></p>
B. Mention the medical biochemistry factual basics and principles essential to the principles of pharmacology.		
C. State update and evidence based Knowledge related to the principles of pharmacology and biochemistry.		
D. Mention the basic ethical and medicolegal principles revenant to Principles of pharmacology and biochemistry.		
E. Mention the ethical and scientific principles of medical research		

B. Intellectual outcomes

<i>ILOs</i>	<i>Methods of teaching/ learning</i>	<i>Methods of Evaluation</i>
A. Correlates the facts of biochemistry with conditions and diseases of relevance to principles of pharmacology and biochemistry.	-Lectures -Literatures -Different search engines & Data base. Seminars Journal club	<i>written and oral examinations, Log book</i>
B. Demonstrate an investigatory and analytic thinking (problem solving) approaches to conditions relevance to principles of pharmacology and biochemistry.		

C. Practical skills

ILOs	Methods of teaching/ learning	Methods of Evaluation
A. Perform the basic lab skills essential to the principles of pharmacology and biochemistry including the following: - Different methods of collection and preparation of body fluid samples. - Estimation of some indices by kits (ELISA & RIA). - Chemical methods of measurement of some indices (such as blood sugar level and kidney function parameters).	Practical training Procedure Test experiments	Practical examination Log book
B. Use information technology to support decisions in common situations related to principles of pharmacology and biochemistry.		

D. General Skills

Practice-Based Learning and Improvement

ILOs	Methods of teaching/ learning	Methods of Evaluation
A. Perform practice-based improvement activities using a systematic methodology(audit, logbook)	Observation and supervision discussion	Log book Portfolio
B. Appraise evidence from scientific studies.		
C. participate in one audit related to the course		

Interpersonal and Communication Skills

ILOs	Methods of teaching/ learning	Methods of Evaluation
D. Maintain ethically sound relationship with others.	Discussion Oral and written communication.	Logbook Portfolio
E. Elicit information using effective nonverbal, explanatory, questioning, and writing skills.		
F. Provide information using effective nonverbal, explanatory, questioning, and writing skills.		

Professionalism

<i>ILOs</i>	<i>Methods of teaching/ learning</i>	<i>Methods of Evaluation</i>
G. Demonstrate sensitivity and responsiveness to others.	observation	logbook

Systems-Based Practice

ILOs	Methods of teaching/ learning	Methods of Evaluation
H. Assist others in dealing with system complexities.	observation	Global rating

**4. Course contents (topic s/modules/rotation)
Course Matrix**

Time Schedule: First Part

Topic	Covered ILOs			
	Knowledge	Intellectual	Practical skill	General Skills
Metabolism of carbohydrate, Fat and protein.	A- C	A, B	A,B	A-H
Genetic control of protein synthesis .	A- C	A, B	-	A-C
Hormones.	A-E	A, B	A, B	B
Receptors and 2nd messengers	A- C	A, B	-	A-C
Mineral metabolism.	A- C	A	B	A-H
Molecular biology& the bases of genetics.	A-E	A, B	-	A-C

5. Course Methods of teaching/learning:

- Lectures
- Seminar
- Journal club
- Literatures
- Different search engines & Data base.
- Practical training
- Experiment
- Test
- Procedures
- Discussion,
- Observation and supervision.
- Oral and written examination.

6. Course Methods of teaching/learning: for students with poor achievements

- Extra teaching hours either for didactics or training hours.

7. Course assessment methods:

i. Assessment tools: practical examination

Oral examination

Written examination

ii. Time schedule: 1st part.

iii. Marks: 300 (written exam+ oral and practical exam).

8. List of references

i. Lectures notes

- Course notes
- Staff members print out of lectures and/or CD copies

ii. Essential books

- Harper's Illustrated Biochemistry, 32th Edition 2021

iii. Recommended books

- Lippincott's Illustrated Reviews: Biochemistry, Eighth Edition, 2021.

iv. Periodicals, Web sites, ... etc

➤ Periodicals,

- Biochemistry and molecular biology education journal.
- Physiology and Biochemistry journal

➤ Web sites

- <http://www.ncbi.nlm.gov/>
- <http://www.vlib.org/>
- <http://www.genome.ad.jp/kegg/regulation>.

v. others : None

9. Signatures

Course Coordinator: Dr. Abeer M.R. Hussein	Head of the Department: Prof. Hanan Sayed Mohamed
Date 12/2021	Date 12/2021

Course 1
Basic course; Principles of Pharmacology and Microbiology

1. Course data

- + Course Title: Principles of Pharmacology and Microbiology**
- + Course code: PHA207.**
- + Speciality Pharmacology**
- + Number of credit points: Didactic 8 (44.4%) practical 10 (55.6%) total 18**
- + Department (s) delivering the course: medical Pharmacology department in conjunction with Pharmacology department.**
 - + Coordinator (s): As approved by Departmental council.**
- + Date last reviewed: 12/2021**
- + General requirements (prerequisites) if any : None**
- + Requirements from the students to achieve course ILOs are clarified in the joining log book.**

2. Course Aims

- To gain a basic knowledge, facts and skills of microbiology which are appropriate and essential to the principles of pharmacology for clinical reasoning and management of common problem related to pharmacology.

3. Course intended learning outcomes (ILOs):

A-Knowledge and understanding

<i>ILOs</i>	<i>Methods of teaching/ Learning</i>	<i>Methods of Evaluation</i>
A. Describe the microbiology basic knowledge and facts concerning molecular biology & the bases of genetics related to the principles of Pharmacology.	-Lectures -workshops -Literatures And Seminars. -Different search engines & Data base	<i>Written and oral examinations logbook</i>
B. Mention the Microbiology and molecular biology factual basics and principles essential to the principles of pharmacology.		
C. State update and evidence based Knowledge related to the principles of pharmacology and microbiology including the molecular basis of disease processes and the mechanisms of action of drugs.		
D. Mention the ethical and scientific principles of medical research		

B. Intellectual outcomes

<i>ILOs</i>	<i>Methods of teaching/ learning</i>	<i>Methods of Evaluation</i>
A. Correlates the facts of relevant basic and clinically supportive sciences with conditions and diseases of relevance to the principles of pharmacology and microbiology.	-Lectures -workshops -Literatures and Seminars. -Different search engines & Data base	<i>Written and oral examinations logbook</i>
B. Demonstrate an investigatory and analytic thinking (problem solving) approaches to conditions relevance to the principles of pharmacology and microbiology.		
C. Formulate management plans and alternative decisions in different situations and complex issues in the field of the principles of pharmacology and microbiology.		

C. Practical skills

ILOs	Methods of teaching/ learning	Methods of Evaluation
A. Perform the basic lab skills which are essential to the principles of pharmacology and microbiology.	Practical training Experiment Procedure test	Practical examination logbook
B- Master relevant laboratory skills in different situations require Tissue homogenization and preparation.		
C. Carry out plans for performing further tests e.g. PCR and Western blotting.		
D. Use information technology in recent advances in areas related to the principles of pharmacology and microbiology.		
E. Use information technology to support decisions in common situations related to the principles of pharmacology and microbiology.		

D. General Skills

Practice-Based Learning and Improvement

ILOs	Methods of teaching/ learning	Methods of Evaluation
A. Perform practice-based improvement activities using a systematic methodology (audit, logbook)	Observation and supervision discussion	Log book Portfolio
B. Appraises evidence from scientific studies.		
C. participate in one audit related to the course		

Interpersonal and Communication Skills

ILOs	Methods of teaching/ learning	Methods of Evaluation
D. Maintain ethically sound relationship with others.	Discussion Oral and written communication.	Logbook Portfolio
E. Elicit information using effective nonverbal, explanatory, questioning, and writing skills.		
F. Provide information using effective nonverbal, explanatory, questioning, and writing skills.		
G. Write a report in experiment and culture growth.		

Professionalism

<i>ILOs</i>	<i>Methods of teaching/ learning</i>	<i>Methods of Evaluation</i>
H. Demonstrate sensitivity and responsiveness to others.	observation	logbook

Systems-Based Practice

ILOs	Methods of teaching/ learning	Methods of Evaluation
I. Assist others in dealing with system complexities.	observation	Global rating

**4. Course contents (topic s/modules/rotation)
Course Matrix**

Time Schedule: First Part

Topic	Covered ILOs			
	Knowledge	Intellectual	Practical skill	General Skills
A. Molecular biology & the bases of genetics.	A, C	A	A-E	A, B, C
B. Study of the molecular basis of disease processes and the mechanisms of action of drugs.	A-D	A-C	A, B	A-I

5. Course Methods of teaching/learning:

- Lectures
- Seminar
- Journal club
- Literatures
- Different search engines & Data base.
- Practical training
- Experiment
- Test
- Procedures
- Discussion,
- Observation and supervision.
- Oral and written examination.

6. Course Methods of teaching/learning: for students with poor achievements

- Extra teaching hours either for didactics or training hours.

7. Course assessment methods:

- i. Assessment tools: practical examination

Oral examination

Written examination

ii. Time schedule: 1st part.

iii. Marks: 300 (written exam+ oral and practical exam).

8. List of references

i. Lectures notes

- Course notes
- Staff members print out of lectures and/or CD copies

ii. Essential books

- Jawetz, Melnick, & Adelberg's Medical Microbiology, 28th Edition 2019.

iii. Recommended books

- Sherris Medical Microbiology, seventh Edition 2018.
- Microbiology, 2nd edition: Books: by Richard A. Harvey, Pamela (2006).

iv. Periodicals, Web sites, ... etc

➤ Periodicals,

- Journal of clinical microbiology
- Microbiology
- Journal of Medical microbiology

➤ **Web sites:** <http://mic.sgmjournals.org/>

v. others

- None

9. Signatures

Course Coordinator: Mphamed Salem Dr. Abeer M.R.Hussein	Head of the Department: Prof. Hanan Sayed Mohamed
Date 1/2022	Date 1/2022

Second part; Speciality Course Course 2 Pharmacology (advanced)

- **Name of department:** medical Pharmacology
- **Faculty of Medicine**
- **Assiut University**
- **2021-2022**

I. Course data

- + **Course Title:** Pharmacology (Advanced)
- + **Course code:** PHA206
- + **Speciality** Pharmacology
- + **Number of credit points:** Didactic 24 (17.2%), Practical 116 (82.8%)
- + **Department (s) delivering the course:** Pharmacology
- + **Coordinator (s):**
 - **Course coordinator:** as approved by Pharmacology Department council.
- + **Date last reviewed:** September 2017
- + **General requirements (prerequisites) if any :** None
- + **Requirements from the students to achieve course ILOs are clarified in the joining log book.**
- + **It is divided into 3 units:**
 - Unit 1 pharmacology I (General basic pharmacology).
 - Unit 2 Pharmacology II (Systematic pharmacology)
 - Unit 3 experimental pharmacology including evaluation of new drugs.

2. Course Aims

Pharmacology is the science which seeks to explain how drugs work and what the body does to the drug.. This can be at the molecular, cellular, tissue or whole body level; therefore the pharmacologist will need to understand aspects of several core sciences – chemistry, biochemistry, molecular, cell biology, physiology and pathology. Taken these together makes Pharmacology a strong candidate for the ideal life' science.

The aims of the program are:

- 1 The candidate is able to acquire the basic knowledge and skills that is essential and appropriate to common pharmacology conditions and situations in different aspects of related including ; general , systematic and experimental pharmacology in practice.
- 2 To apply pharmacological knowledge and principles to compact with raised therapeutic failure of certain drugs and drug/drug interaction.

3. Course intended learning outcomes (ILOs):

Unit 1: Pharmacology I (General basic pharmacology)

A-Knowledge and understanding

<i>ILOs</i>	<i>Methods of teaching/ Learning</i>	<i>Methods of Evaluation</i>
<p>A. Describe common detailed principles and conditions related to General pharmacology including the following:</p> <ul style="list-style-type: none"> • Pharmacokinetics • Pharmacodynamics(e.g. Drug receptors, ion channels, etc.) <ul style="list-style-type: none"> • Membrane transporters and drug response • Drug interactions • Adverse drug reactions • Pharmacogenetics/genomics • Drugs acting on the autonomic nervous system • Autacoids • Drugs acting on the cardiovascular system • Drugs acting on the renal system • Drugs acting on the Blood • Pharmacology education 	<p>-Lectures -workshops -Literatures And Seminars. -Different search engines & Data base</p>	<p><i>Written and oral examinations, MCQ</i></p>
<p>B. Mention the factual basics and principles essential to General pharmacology</p>		
<p>C. State update and evidence based</p>		

Knowledge related to General pharmacology		
D. Memorize the facts and principles of the other relevant basic and clinically supportive sciences related to General pharmacology		
E. Mention the basic ethical and medicolegal principles relevant to the General pharmacology.		
F. Mention the basics of quality assurance to ensure good professional skills in his field.		
G. Mention the ethical and scientific principles of medical research		

B. Intellectual outcomes

<i>ILOs</i>	<i>Methods of teaching/ learning</i>	<i>Methods of Evaluation</i>
A. Correlates the facts of relevant basic and clinically supportive sciences with conditions of relevance to general pharmacology.	-Lectures -workshops -Literatures And	<i>Written and oral examinations, MCQ</i>
B. Demonstrate an investigatory and analytic thinking (problem solving) approaches to conditions relevance to general pharmacology.	Seminars. -Different search engines & Data base	
C. Design and present audits, seminars in common medical problems related to general pharmacology.		
D. Formulate management plans and alternative decisions in different situations and complex issues in the field of the general pharmacology.		

C-Practical skills=0

D. General Skills

Practice-Based Learning and Improvement

ILOs	Methods of teaching/ learning	Methods of Evaluation
A. Perform practice-based improvement activities using a systematic methodology(audit, logbook)	Observation and supervision discussion	Log book Portfolio
B. Appraises evidence from scientific studies.		
C. participate in one audit related to pharmacology.		

Interpersonal and Communication Skills

ILOs	Methods of teaching/ learning	Methods of Evaluation
D. Maintain ethically sound relationship with others.	Discussion Oral and written communication.	Logbook Portfolio
E. Elicit information using effective nonverbal, explanatory, questioning, and writing skills.		
F. Provide information using effective nonverbal, explanatory, questioning, and writing skills.		

Professionalism

<i>ILOs</i>	<i>Methods of teaching/ learning</i>	<i>Methods of Evaluation</i>
G. Demonstrate sensitivity and responsiveness to others.	observation	logbook

Systems-Based Practice

ILOs	Methods of teaching/ learning	Methods of Evaluation
H. Assist others in dealing with system complexities.	observation	Global rating

Unit 2; Pharmacology II (Systematic Pharmacology)

A-Knowledge and understanding

<i>ILOs</i>	<i>Methods of teaching/ Learning</i>	<i>Methods of Evaluation</i>
<p>A. Describe common Principles& details of advanced systematic pharmacology include the following:</p> <ul style="list-style-type: none"> • Drugs acting on the central nervous system • Drugs acting on the respiratory system • Drugs acting on the gastrointestinal Tract • Drugs used in treatment of infectious diseases e.g. hepatitis C and COVID • Cancer chemotherapy • Drugs acting on endocrine system • Immunopharmacology (Immunomodulators/immunosuppressives) • Oxidative stress and anti-oxidants • New trends in treatments by stem cell • Role of cytochrome p450 in health and disease 	<p>-Lectures -workshops -Literatures And Seminars. -Different search engines & Data base</p>	<p><i>Written and oral examinations</i> Logbook MCQ</p>

<ul style="list-style-type: none"> • New biomarkers 		
B. Mention the factual basics and principles essential to the systematic pharmacology.		
C. State update and evidence based Knowledge related to the systematic pharmacology.		
E. Memorize the facts and principles of the other relevant basic and clinically supportive sciences related to systematic pharmacology		
F. Mention the basic ethical and medicolegal principles relevant to the systematic pharmacology		
G. Mention the basics of quality assurance to ensure good professional skills in his field.		
H. Mention the ethical and scientific principles of medical research		

B. Intellectual outcomes

<i>ILOs</i>	<i>Methods of teaching/ learning</i>	<i>Methods of Evaluation</i>
D. Correlates the facts of relevant basic and clinically supportive sciences with conditions and diseases of relevance to systematic pharmacology.	-Lectures -workshops -Literatures And Seminars.	<i>Written and oral examinations</i> Logbook MCQ
E. Demonstrate an investigatory and analytic thinking (problem solving) approaches to conditions relevance to systematic pharmacology.	-Different search engines & Data base	
F. Design and present audits, seminars in common medical problems related to systematic pharmacology.		

D. Formulate management plans and alternative decisions in different situations and complex issues in the field of the systematic pharmacology.		
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C-Practical skills= 0

D. General Skills

Practice-Based Learning and Improvement

ILOs	Methods of teaching/ learning	Methods of Evaluation
A. Perform practice-based improvement activities using a systematic methodology(audit, logbook).	Observation and supervision discussion	Log book Portfolio
B. Appraises evidence from scientific studies.		
C. participate in one audit related to systematic pharmacology.		

Interpersonal and Communication Skills

ILOs	Methods of teaching/ learning	Methods of Evaluation
D. Maintain ethically sound relationship with others.	Discussion Oral and written communication.	Logbook Portfolio
E. Elicit information using effective nonverbal, explanatory, questioning, and writing skills.		
F. Provide information using effective nonverbal, explanatory, questioning, and writing skills.		
G. Present a case/data .		

Professionalism

<i>ILOs</i>	<i>Methods of teaching/ Learning</i>	<i>Methods of Evaluation</i>
H. Demonstrate sensitivity and responsiveness to others.	Observation	logbook

Systems-Based Practice

ILOs	Methods of teaching/ Learning	Methods of Evaluation
I. Assist others in dealing with system complexities.	Observation	Global rating

4. Course contents (topic s/modules/rotation) Course Matrix

Time Schedule: Second part

Topic	Unit 1 pharmacology I			
	Covered ILOs			
	Knowledge	Intellectual	Practical skill	General Skills
Ion channels and their relevance to drug action	A-D	A-C	-	A-C
Transport of drugs across cell membranes	A-D	A-C	-	A-C
Cytochrome P450 system	A-D	A-C	-	A-C
Clinical pharmacokinetics	A-G	A-D	-	A-I
Adverse drug reactions	A-G	A-D	-	A-I
Systemic pharmacology	A-G	A-D	-	A-H
Autonomic	A-G	A-D	-	A-F
Adrenergic	A-G	A-D	-	A-F
Cholinergic	A-G	A-D	-	A-F
Autacoids	A-G	A-D	-	A-F
CVS	A-G	A-D	-	A-F
Diuretics	A-G	A-D	-	A-F
Blood	A-G	A-D	-	A-F

		Unit 2 Pharmacology II			
Topic		Covered ILOs			
		Knowledge	Intellectual	Practical skill	General Skills
Drug receptors		A-C	A-C	-	A-C
Neurotransmitters		A-D	A-C	-	A-C
Immunopharmacology		A-G	A-D	-	A-I
Oxidative stress and anti-oxidants		A-F	A-D	-	A-I
Screening of drug with CNS activity		A-G	A-D	-	A-I
Systemic pharmacology		A-G	A-C	-	A-G
CNS		A-G	A-C	-	A-G
Respiration		A-G	A-C	-	A-G
GIT		A-G	A-C	-	A-G
Chemotherapy		A-G	A-C	-	A-G
Hormones		A-G	A-C	-	A-G
Drug receptors		A-G	A-C	-	A-C
Neurotransmitters		A-D	A-C	-	A-C

	Unit 3 Experimental pharmacology and clinical evaluation of new drugs.			
Topic	Covered ILOs			
	Knowledge	Intellectual	Practical skill	General Skills
•Induction of disease states in animal models	A-H	A-C	A-G	A-E
•Screening of drugs	A-H	A-D	A-J	A-Q
•Tetrad system •Finkelman preparation	A-G A-G	A-D	A-G A-G	A-E A-O
•Rabbit aortic strip •Guinea pig tracheal chain	E,F,G E,F,G	A-C A-C	A-D A-D	A-E A-E
•Guinea pig ileum •Rat stomach fundus	E,F,G E,F,G	A-C A-C	A-D A-D	A-E A-E
•Rat uterus •Rat colon	E,F,G E,F,G	A-C A-C	A-D A-D	A-E A-E
•Rotarod test •Conditional avoidance test	A-G A-G	A-C A-D	A-D A-F	A-E A-E
•Actophotometer •Forced swimming test	A-G A-G	A-C A-D	A-D A-F	A-E A-E
•Localization of the site of action of hypotensive drugs	A-D	A-D	A-D	A-E
Preliminary tests for CNS depressants or stimulants	A-H	A-D	A-J	A-Q

5. Course Methods of teaching/learning:

- Lectures
- workshops.
- Literatures and Seminars.
- Different search engines & Data base.
- Observation and supervision
- Journal club
- Written & oral communication.
- Didactics
- Tutorial

- Report discussion.

6. Course Methods of teaching/learning: for students with poor achievements

1. Extra Didactic (lectures, seminars, tutorial) according to their needs
2. Extra training according to their needs.

7. Course assessment methods:

i. Assessment tools:

- Written and oral examinations
- Practical exam.
- Logbook.
- Practical exam
- Experimental
- Case discussion
- Chick list
- Report
- Portfolio.
- Objective structured examination
- 360o global rating
- Check list evaluation of live or recorded performance.
- Problem solving.
- Reports.
- MCQ.

ii. Time schedule: 3-4 years

iii. Marks: = 1200 marks.

8. List of references

i. Lectures notes

- ii. Staff members print out of lectures and/or CD copies

ii. Essential books

- Basic & Clinical Pharmacology, e15th Edition. By Bertram Katzung, Anthony Trevor, Susan Masters. Publisher: McGraw-Hill, 2020.

- Goodman Gilmans. The pharmacological therapeutics. 13th Ed, 2018

iv. Periodicals, Web sites, ... etc

➤ **Periodicals,**

- British journal of pharmacology
- Pharmacological review
 - **Web sites:** <http://mic.sgmjournals.org/>

v. others : None.

9. Signatures

Course Coordinator: Dr. Mohamed Salem Dr. Abeer M.R. Hussein	Head of the Department: Prof. Hanan Sayed Mohamed
Date: 1/2022	Date: 1/2022

Annex 2,
Program academic
reference standards

ANNEX 2

Program Academic Reference Standards (ARS)

1- Graduate attributes for master degree of Pharmacology

1- Graduate attributes for basic master degree

The Graduate (after residence training and master degree years of study) must:

- 1-** Have the capability to be a scholar, understanding and applying basics, methods and tools of scientific research and medical audit in the chosen field of Pharmacology.
- 2-** Appraise and utilise scientific knowledge to continuously update and improve clinical practice in related speciality.
- 3-** Acquire sufficient medical knowledge in the basic biomedical, clinical, behavioural and clinical sciences, medical ethics and medical jurisprudence and apply such knowledge in patient care in the field of Pharmacology.
- 4-** Dealing with common problems and health promotion using updated information in the field of Pharmacology.
- 5-** Identify and share to solve health problems in his speciality.
- 6-** Acquire all competencies –including the use of recent technologies- that enable him to provide safe, scientific, and ethical care including update use of new technology in the Pharmacology field.

- 7-** Demonstrate interpersonal and communication skills that ensure effective information exchange with other health professions, the scientific community, junior students and the public.
- 8-** Function as supervisor, and trainer in relation to colleagues, medical students and other health professions.
- 9-** Acquire decision making capabilities in different situations related to his field of practice.
- 10-** Show responsiveness to the larger context of the related health care system, including e.g. the organisation of health care, partnership with health care providers and managers, practice of cost-effective health care, health economics, and resource allocations.
- 11-** Be aware of public health and health policy issues and share in system-based improvement of his practice and related health care.
- 12-** Show appropriate attitudes and professionalism.
- 13-** Demonstrate skills of lifelong learning and maintenance of competence and ability for continuous medical education and learning in subsequent stages in the Pharmacology or one of its subspecialties.

2- Competency based Standards for basic master degree graduates

2.1- Knowledge and understanding

By the end of the program, the graduate should demonstrate satisfactory knowledge and understanding of

2-1-A- Established basic, biomedical, clinical, epidemiological and behavioral sciences related to the Pharmacology.

2-1-B- The relation between practice in the speciality and the welfare of society.

2-1-C- Up to date and recent developments in common problems related to the field of Pharmacology.

2-1-D- Ethical and medicolegal principles relevant to practice in the Pharmacology field.

2-1-E -Quality assurance principles related to the good medical practice in the Pharmacology field.

2-1-F- Ethical and scientific basics of medical research.

2.2- Intellectual skills:

By the end of the program, the graduate should be able to demonstrate the following:

2-2-A- Correlation of different relevant sciences in the problem solving and management of common problems of the Pharmacology.

2-2-B- Problem solving skills based on data analysis and evaluation (even in the absence of some) for common situations related to Pharmacology.

2.2- C- Demonstrating systematic approach in studying common themes or problems relevant to the Pharmacology field.

2-2-D- Making alternative decisions in different situations in the field of the Pharmacology.

2.3- Clinical skills/Practical skills

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

- 2-3-A** - Provide practical and or laboratory services that can help patient care, solving health problems and better understanding of the normal structure and function.
- 2-3-B**- Demonstrate practical / laboratory skills relevant to Pharmacology.
- 2-3- C**- Write and comment on reports for situations related to the field of Pharmacology.

2.4- General skills

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

Competency-based outcomes for practice-based learning and improvement

- 2-4-A**- Demonstrate practice-based learning and improvement skills that involves investigation and evaluation of their own practice, appraisal and assimilation of scientific evidence, improvements in provided services and risk management.
- 2-4-B**- Use all information sources and technology to improve his practice.
- 2-4-C**- Demonstrate skills of teaching and evaluating others.

Competency-based objectives for interpersonal and communication Skills

- 2-4-D**- Demonstrate interpersonal and communication skills that result in effective information exchange and teaming with patients, their families, lab technical staff and other health professionals.

Competency-based objectives for Professionalism

- 2-4-E**- Demonstrate professionalism behaviors, as manifested through a commitment to carrying out professional

responsibilities, adherence to ethical principles, and sensitivity to a diverse patient population.

 ***Competency-based objectives for Systems-based Practice***

2-4-F- Demonstrate an awareness of and responsiveness to the larger context and system of health care and academic services and the ability to effectively use system resources to provide care that is of optimal value.

2-4-G- Demonstrate skills of effective time management.

2-4-H- Demonstrate skills of self and continuous learning.

Annex 3, Methods of teaching/learning

Annex 3, Methods of teaching/learning

	Patient care	Medical knowledge	Practice-based learning/Improvement	Interpersonal and communication skills	Professionalism	Systems-based practice
Didactic (lectures, seminars, tutorial)	X	X		X	X	X
journal club,	X	X	X			
Educational prescription	X	X	X	X	X	X
Present a case (true or simulated) in a grand round	X	X	X	X	X	
Observation and supervision	X		X	X	X	X
conferences		X	X	X		X
Written assignments	X	X	X	X	X	X
Oral assignments	X	X	X	X	X	X

Teaching methods for knowledge

- ❖ Didactic (lectures, seminars, tutorial)
- ❖ journal club
- ❖ Critically appraised topic
- ❖ Educational prescription (a structured technique for following up on clinical questions that arise during rounds and other venues).
- ❖ Present a case (true or simulated) in a grand round
- ❖ Others

Teaching methods for patient care

- ❖ Observation and supervision /Completed tasks procedure/case logs
- ❖ On-the-job” training without structured teaching is not sufficient for this skill (checklists).
- ❖ Simulation is increasingly used as an effective method for skill/ teamwork training.

Teaching methods for other skills

- ❖ Written communication (e.g., orders, progress note, transfer note, discharge summary, operative reports, and diagnostic reports).
- ❖ Oral communication (e.g., presentations, transfer of care, interactions with patients, families, colleagues, members

of the health care team) and/or non verbal skills (e.g., listening, team skills)

- ❖ Professionalism, including medical ethics, may be included as a theme throughout the program curriculum that includes both didactic and experiential components (e.g., may be integrated into already existing small group discussions of vignettes or case studies and role plays, computer-based modules) and may be modeled by the faculty in clinical practice and discussed with the resident as issues arise during their clinical practice.

Annex 4, Assessment methods

Annex 4, ILOs evaluation methods for Master Degree students.

Method	Practical skills	K	Intellectual	General skills			
	Patient care	K	I	Practice-based learning/ Improvement	Interpersonal and communication skills	Professionalism	Systems-based practice
Record review	X	X	X		X	X	X
Checklist	X				X		
Global rating	X	X	X	X	X	X	X
Simulations	X	X	X	X	X	X	
Portfolios	X	X	X	X	X		
Standardized oral examination	X	X	X	X	X		X
Written examination	X	X	X	X			X
Procedure/ case log	X	X					

Annex 4, Glossary of Master Degree doctors assessment methods

- ❖ Record Review – Abstraction of information from patient records, such as medications or tests ordered and comparison of findings against accepted patient care standards.
- ❖ Chart Stimulated Recall – Uses the MSc doctor’s patient records in an oral examination to assess clinical decision-making.
- ❖ Mini clinical evaluation: Evaluation of Live/Recorded Performance (single event) – A single resident interaction with a patient is evaluated using a checklist. The encounter may be videotaped for later evaluation.
- ❖ Standardized Patients (SP) – Simulated patients are trained to respond in a manner similar to real patients. The standardized patient can be trained to rate MSc doctor’s performance on checklists and provide feedback for history taking, physical examination, and communication skills. Physicians may also rate the MSc doctor’s performance.
- ❖ Objective Structured Clinical Examination (OSCE) – A series of stations with standardized tasks for the MSc doctors to perform. Standardized patients and other assessment methods often are combined in an OSCE. An observer or the standardized patient may evaluate the MSc doctors.
- ❖ Procedure or Case Logs – MSc doctors prepare summaries of clinical experiences including clinical data. Logs are useful to document educational experiences and deficiencies.

- ❖ PSQs – Patients fill out Patient Survey questionnaires (PSQs) evaluating the quality of care provided by a MSc doctors.
- ❖ Case /problems – assess use of knowledge in diagnosing or treating patients or evaluate procedural skills.
- ❖ Models: are simulations using mannequins or various anatomic structures to assess procedural skills and interpret clinical findings. Both are useful to assess practice performance and provide constructive feedback.
- ❖ 360 Global Rating Evaluations – MSc doctors, faculty, nurses, clerks, and other clinical staff evaluate MSc doctors from different perspectives using similar rating forms.
- ❖ Portfolios – A portfolio is a set of project reports that are prepared by the MSc doctors to document projects completed during the MSc study years. For each type of project standards of performance are set. Example projects are summarizing the research literature for selecting a treatment option, implementing a quality improvement program, revising a medical student clerkship elective, and creating a computer program to track patient care and outcomes.
- ❖ Examination MCQ – A standardized examination using multiple-choice questions (MCQ). The in-training examination and written board examinations are examples.
- ❖ Examination Oral – Uses structured realistic cases and patient case protocols in an oral examination to assess clinical decision-making.
- ❖ Procedure or Case Logs – MSc doctors prepare summaries of clinical experiences including clinical data. Logs are

useful to document educational experiences and deficiencies.

- ❖ PSQs – Patients fill out Patient Survey questionnaires (PSQs) evaluating the quality of care provided by MSc doctors.

Annex 5,
Program evaluation tools

By whom	Method	sample
Quality Assurance Unit	Reports Field visits	#
External Evaluator (s): According to department council External Examiner (s): According to department council	Reports Field visits	#
Stakeholders	Reports Field visits questionnaires	#
Senior students	questionnaires	#
Alumni	questionnaires	#

#Annex 5 contains evaluation templates and reports (Joined in the departmental folder).

Annex 6, Program Correlations:

مصفوفة توافق المعايير القومية القياسية العامة لبرامج الماجستير مع المعايير الأكاديمية المعتمدة من كلية الطب □ جامعة أسيوط لدرجة الماجستير في التشريح

I- General Academic Reference Standards (GARS) versus Program ARS

1- Graduate attributes

NAQAAE General ARS for Postgraduate Programs	Faculty ARS
1- إجادة تطبيق أساسيات و منهجيات البحث العلمي واستخدام أدواته المختلفة	1- Have the capability to be a scholar, understanding and applying basics, methods and tools of scientific research and medical audit in Pharmacology
2- تطبيق المنهج التحليلي واستخدامه في مجال التخصص	2- Appraise and utilise scientific knowledge to continuously update and improve clinical practice in the Pharmacology
3- تطبيق المعارف المتخصصة و دمجها مع المعارف ذات العلاقة في ممارسته المهنية	3- Acquire sufficient medical knowledge in the basic biomedical, clinical, behavioural and clinical sciences, medical ethics and medical jurisprudence and apply such knowledge in patient care in the field of speciality.
4- إظهار وعيا بالمشاكل الجارية و الرؤى الحديثة في مجال التخصص	4- Dealing with common problems and health promotion using updated information in the field of speciality.
5- تحديد المشكلات المهنية و إيجاد حلول لها	5- Identify and share to solve health problems in his speciality.
6- إتقان نطاق مناسب من المهارات المهنية المتخصصة، واستخدام الوسائل التكنولوجية المناسبة بما يخدم ممارسته المهنية	6- Acquire all competencies that enable him to provide safe, scientific, ethical care including update use of new technology in Pharmacology

1- Graduate attributes (Continuous)

NAQAAE General ARS for Postgraduate Programs	Faculty ARS
7-التواصل بفاعلية و القدرة على قيادة فرق العمل	7- Demonstrate interpersonal and communication skills that ensure effective information exchange with other health professions, the scientific community, junior students and the public. 8- Function as supervisor, and trainer in relation to colleagues, medical students and other health professions.
8-اتخاذ القرار في سياقات مهنية مختلفة	9- Acquire decision making capabilities in different situations related to Pharmacology field of practice.
9- توظيف الموارد المتاحة بما يحقق أعلى استفادة و الحفاظ عليها	10- Show responsiveness to the larger context of the related health care system, including e.g. the organisation of health care, partnership with health care providers and managers, practice of cost-effective health care, health economics, and resource allocations.
10-إظهار الوعي بدوره في تنمية المجتمع و الحفاظ على البيئة في ضوء المتغيرات العالمية و الإقليمية	11- Be aware of public health and health policy issues and share in system-based improvement of Pharmacology
11-التصرف بما يعكس الالتزام بالنزاهة و المصداقية و الالتزام بقواعد المهنة	12- Show appropriate attitudes and professionalism.
12-تنمية ذاته أكاديميا و مهنيا و قادرا علي التعلم المستمر	13- Demonstrate skills of lifelong learning and maintenance of competence and ability for continuous medical education and learning in subsequent stages in Pharmacology one of its subspecialties.

2-Academic standards

NAQAAE General ARS for Postgraduate Programs	Faculty ARS
2-1-1-أ-النظريات و الأساسيات المتعلقة بمجال التعلم وكذا في المجالات ذات العلاقة.	2.1. A - Established basic, biomedical, clinical, epidemiological and behavioral sciences related to Pharmacology
2-1-1-ب-التأثير المتبادل بين الممارسة المهنية وانعكاسها علي البيئة.	2.1. B- The relation between practice in Pharmacology and the welfare of society.
2-1-1-ج-التطورات العلمية في مجال التخصص.	2.1. C- Up to date and recent developments in common problems related to the Pharmacology
2-1-1-د-المبادئ الأخلاقية و القانونية للممارسة المهنية في مجال التخصص.	2.1. D- Ethical and medicolegal principles relevant to practice in the Pharmacology field.
2-1-1-هـ- مبادئ و أساسيات الجودة في الممارسة المهنية في مجال التخصص	2.1. E- Quality assurance principle related to the good medical practice in the Pharmacology field.
2-1-1-و- أساسيات وأخلاقيات البحث العلمي	2.1. F- Ethical and scientific basics of medical research.

2-Academic standards (Continuous)

NAQAAE General ARS for Postgraduate Programs	Faculty ARS
2-2-أ- تحليل و تقييم المعلومات في مجال التخصص والقياس عليها لحل المشاكل	2.2. A- Correlation of different relevant sciences in the problem solving and management of common problems of the Pharmacology
2-2-ب- حل المشاكل المتخصصة مع عدم توافر بعض المعطيات	2.2. B- Problem solving skills based on data analysis and evaluation (even in the absence of some) for common situations related to Pharmacology
2-2-ج- الربط بين المعارف المختلفة لحل المشاكل المهنية	2.2.C- Correlation of different relevant sciences in the problem solving and management of common problems of Pharmacology
2-2-د- إجراء دراسة بحثية و /أو كتابة دراسة علمية منهجية حول مشكلة بحثية	2.2.D- Demonstrating systematic approach in studying common themes or problems relevant to the Pharmacology.
2-2-هـ- تقييم المخاطر في الممارسات المهنية في مجال التخصص	2.2.H- Demonstrate practice-based learning and improvement skills that involves investigation and evaluation of their own practice, appraisal and assimilation of scientific evidence, improvements in provided services and risk management.
2-2-و- التخطيط لتطوير الأداء في مجال التخصص	2.2. I- Demonstrate practice-based learning and improvement skills that involves investigation and evaluation of their own practice, appraisal and assimilation of scientific evidence, improvements in provided services and risk management.

2-Academic standards (Continuous)

NAQAAE General ARS for Postgraduate Programs	Faculty ARS
2-2-2-ز - اتخاذ القرارات المهنية في سياقات مهنية متنوعة	2.2. D- Making alternative decisions in different situations in the field of Pharmacology
2-3-2-أ - إتقان المهارات المهنية الأساسية و الحديثة في مجال التخصص	2.3.A- Provide practical and or laboratory services that can help patient care ,solving health problems and better understanding of the normal structure and function. 2.3. B- Demonstrate practical / laboratory skills relevant to Pharmacology
2-3-2-ب - كتابة و تقييم التقارير المهنية	2.3. C- Write and comment on reports for situations related to the field Pharmacology
2-3-2-ج - تقييم الطرق و الأدوات القائمة في مجال التخصص	2.3.A- Provide practical and or laboratory services that can help patient care ,solving health problems and better understanding of the normal structure and function. 2.3. B- Demonstrate practical / laboratory skills relevant to Pharmacology

2-Academic standards (Continuous)

NAQAAE General ARS for Postgraduate Programs	Faculty ARS
2-4-2-أ-التواصل الفعال بأنواعه المختلفة	2.4. D- Demonstrate interpersonal and communication skills that result in effective information exchange and teaming with patients, their families, lab technical staff and other health professionals.
2-4-2-ب- استخدام تكنولوجيا المعلومات بما يخدم الممارسة المهنية	2.4. A- Demonstrate Practice-Based learning and Improvement skills that involves investigation and evaluation of their own practice, appraisal and assimilation of scientific evidence, improvements in provided services and risk management. 2.4. B- Use all information sources and technology to improve his practice.
2-4-2-ج- التقييم الذاتي وتحديد احتياجاته التعليمية الشخصية	2.4. A- Demonstrate Practice-Based learning and Improvement skills that involves investigation and evaluation of their own practice, appraisal and assimilation of scientific evidence, improvements in provided services and risk management. 2.4. B- Use all information sources and technology to improve 2.4. E-Demonstrate Professionalism behaviors, as manifested through a commitment to carrying out professional responsibilities, adherence to ethical principles, and sensitivity to a diverse patient population.

2-Academic standards (Continuous)

NAQAAE General ARS for Postgraduate Programs	Faculty ARS
2-4-2-د- استخدام المصادر المختلفة للحصول على المعلومات و المعارف	2.4. A- Demonstrate Practice-Based learning and Improvement skills that involves investigation and evaluation of their own practice, appraisal and assimilation of scientific evidence, improvements in provided services and risk management.
2-4-2-هـ- وضع قواعد ومؤشرات تقييم أداء الآخرين	2.4. C- Demonstrate skills of teaching and evaluating others.
2-4-2-و- العمل في فريق ، وقيادة فرق في سياقات مهنية مختلفة	2.4. F- Demonstrate an awareness of and responsiveness to the larger context and system of health care and academic services and the ability to effectively use system resources to provide care that is of optimal value.
2-4-2-ز- إدارة الوقت بكفاءة	2.4. G- Demonstrate skills of effective time management.
2-4-2-ح- التعلم الذاتي و المستمر	2.4. H- Demonstrate skills of self and continuous learning.

Comparison between ARS & ILOS for master degree

(basic)

(ARS)	(ILOS)
<p><u>2-1- Knowledge and understanding</u></p> <p>2-1-A- Established basic, biomedical, clinical, epidemiological and behavioral sciences related to Pharmacology</p>	<p><u>2-1- Knowledge and understanding</u></p> <p>2-1-A- Explain the essential facts and principles of relevant basic sciences including basic Pharmacology.</p> <p>2-1-B- Mention essential facts of clinical supportive sciences related to Pharmacology</p> <p>2-1-C- Demonstrate sufficient knowledge of the main subjects related to Pharmacology</p>
<p>2-1-B The relation between practice in the Pharmacology and the welfare of society.</p>	<p>2-1-H- State the impact of common problems related to the field of Pharmacology on the society and how good practice can improve these problems.</p>
<p>2-1-C- Up to date and recent developments in common problems related to the field of Pharmacology.</p>	<p>2-1-C- Demonstrate sufficient knowledge of the main subjects related to Pharmacology</p> <p>2-1-D- Give the recent and update developments in the most important themes related to Pharmacology</p>
<p>2-1-D- Ethical and medicolegal principles relevant to practice in the Pharmacology field.</p>	<p>2-1-E- Mention the basic ethical and medicolegal principles that should be applied in practice and are relevant to the field of Pharmacology</p>
<p>2-1-E- Quality assurance principles related to the good medical practice in the Pharmacology field.</p>	<p>2-1-F- Mention the basics and standards of quality assurance to ensure good practice in the field of Pharmacology.</p>
<p>2-1-F- Ethical and scientific basics of medical research.</p>	<p>2-1-G- Mention the ethical and scientific principles of medical research methodology.</p>

continuous (ARS)	continuous (ILOs)
<p><u>2-2- Intellectual skills:</u></p> <p>2-2-A-Correlation of different relevant sciences in the problem solving and management of common problems of the Pharmacology.</p>	<p><u>2-2- Intellectual skills:</u></p> <p>2-2-A- Correlate the relevant facts of relevant basic and clinically supportive sciences with reasoning, diagnosis and management of common problems of the Pharmacology.</p>
<p>2-2-B-Problem solving skills based on data analysis and evaluation (even in the absence of some) for common situations related to Pharmacology.</p>	<p>2-2-B- Demonstrate an investigatory and analytic thinking approach (problem solving) to common clinical or practical situations related to Pharmacology.</p>
<p>2-2-C- Demonstrating systematic approach in studying common themes or problems relevant to the Pharmacology field.</p>	<p>2-2-C- Design and /or present a case or review (through seminars/journal clubs.) in one or more of common themes or problems relevant to the Pharmacology.</p>
<p>2-2-D Making alternative decisions in different situations in the field of the Pharmacology.</p>	<p>2-2-D- Formulate management plans and alternative decisions in different situations in the field of the Pharmacology.</p>
<p><u>2-3- Practical skills:</u></p> <p>2-3-A- Provide practical and or laboratory services that can help patient care ,solving</p>	<p><u>2/3/1/Practical skills)</u></p> <p>2-3-1-A- Demonstrate competently relevant laboratory skills related to</p>

<p>health problems and better understanding of the normal structure and function.</p> <p>2-3-B- Demonstrate practical/laboratory skills relevant to that Pharmacology.</p>	<p>Pharmacology.</p> <p>2-3-1-B- Use the up to date technology for the conditions related to Pharmacology.</p> <p>2-3-1-C- Develop plans for performing experiments related to Pharmacology.</p> <p>2-3-1-D- Carry out common experiments related to Pharmacology.</p> <p>2-3-1-E- Counsel and educate students, technicians and junior staff, in the lab about conditions related to Pharmacology.; including handling of samples, devices, safety and maintenance of laboratory equipments.</p> <p>2-3-1-F- Use information technology in some of the situations related to Pharmacology.</p> <p>2-3-1-G- Share in providing health care services aimed supporting patient care ,solving health problems and better understanding of the normal structure and function.</p>
<p>2-3-C- Write and comment on reports for situations related to the field Pharmacology.</p>	<p>2-3-1-H Write competently all forms of professional reports related to Pharmacology (lab reports, experiments reports,).</p>

<p>continuous</p> <p>(ARS)</p>	<p>continuous</p> <p>(ILOs)</p>
<p><u>2-4- General skills</u></p> <p>2-4-A- Demonstrate practice-based learning and improvement skills that involves investigation and evaluation of their own practice, appraisal and assimilation of scientific evidence, improvements in provided services and risk management</p>	<p><u>2/3/2 General skills</u></p> <p>2-3-2-A- Perform practice-based improvement activities using a systematic methodology (share in audits and risk management activities and use logbooks).</p> <p>2-3-2-B- Appraises evidence from scientific studies.</p> <p>2-3-2-C- Conduct epidemiological Studies and surveys.</p>
<p>2-4-B- Use all information sources and technology to improve his practice.</p>	<p>2-3-2-C- Conduct epidemiological Studies and surveys.</p> <p>2-3-2-D- Perform data management including data entry and analysis and Using information technology to manage information, access on-line medical information; and support their own education.</p>
<p>2-4-C- Demonstrate skills of teaching and evaluating others.</p>	<p>2-3-2-E- Facilitate learning of students, lab technical staff and other health care professionals including their evaluation and assessment.</p>
<p>2-4-D- Demonstrate interpersonal and communication skills that result in effective</p>	<p>2-3-2-F- Maintain therapeutic and ethically sound relationship with patients, their families, lab</p>

<p>information exchange and teaming with patients, their families, lab technical staff and other health professionals.</p>	<p>technical staff and other health professionals.</p> <p>2-3-2-G- Elicit information using effective nonverbal, explanatory, questioning, and writing skills.</p> <p>2-3-2-H- Provide information using effective nonverbal, explanatory, questioning, and writing skills.</p> <p>2-3-2-I- Work effectively with others as a member of a team or other professional group.</p>
<p>2-4-E-Demonstrate professionalism behaviors, as manifested through a commitment to carrying out professional responsibilities, adherence to ethical principles, and sensitivity to a diverse patient population.</p>	<p>2-3-2-J- Demonstrate respect, compassion, and integrity; a responsiveness to the needs of patients and society.</p> <p>2-3-2-K- Demonstrate a commitment to ethical principles including provision or withholding of clinical care, confidentiality of patient information, informed consent, business practices.</p> <p>2-3-2-L-Demonstrate sensitivity and responsiveness to others' culture, age, gender, and disabilities.</p>
<p>2-4-F- Demonstrate an awareness of and responsiveness to the larger context and system of health care and academic services and the ability to</p>	<p>2-3-2-M-Work effectively in relevant academic and health care delivery settings and systems including good administrative and time management.</p>

<p>effectively use system resources to provide care that is of optimal value.</p>	<p>2-3-2-N- Adopt cost-effective practice and resource allocation that does not compromise quality of services. 2-3-2-O- Assist patients in dealing with system complexities.</p>
<p>2-4-G- Demonstrate skills of effective time management.</p>	<p>2-3-2-M- Work effectively in relevant academic or health care systems including good administrative and time management.</p>
<p>2-4-H- Demonstrate skills of self and continuous learning.</p>	<p>2-3-2-A- Perform practice-based improvement activities using a systematic methodology (share in audits and risk management activities and use logbooks).</p>

II-Program matrix
Knowledge and Understanding

Course	Program covered ILOs							
	2/1/A	2/1/B	2/1/C	2/1/D	2/1/E	2/1/F	2/1/G	2/1/H
Basic course : Course 1: basic Pharmacology and Physiology	✓	✓	✓	✓	✓	✓	✓	
Or Pharmacology and Biochemistry	✓	✓	✓	✓	✓	✓	✓	
Or Pharmacology and Microbiology	✓	✓	✓	✓	✓	✓	✓	
Specialized course: Course 2 :Advanced Pharmacology	✓	✓	✓	✓	✓	✓	✓	✓

Intellectual Outcomes

Course	Program Covered ILOs			
	2/1/A	2/1/B	2/1/C	2/1/D
Basic course : Course 1: Or Pharmacology and Physiology	✓	✓	✓	
Or Pharmacology and Biochemistry	✓	✓	✓	
Or Pharmacology and Microbiology	✓	✓	✓	
Specialized course: Course 2 :Advanced Pharmacology	✓	✓	✓	✓

Practical Skills

Course	Program covered ILOs							
	2/3/1/ A	2/3/1/ B	2/3/1/ C	2/3/1/ D	2/3/1/ E	2/3/1/ F	2/3/1/ G	2/3/1/ H
Basic course : Course 1: basic Pharmacology and Physiology	✓	✓		✓		✓		✓
Or Basic Pharmacology and Biochemistry	✓	✓		✓		✓		✓
Or Basic Pharmacology and Micropharmacology	✓	✓		✓		✓		✓
Specialized course: Course 2 :Advanced Pharmacology	✓	✓	✓	✓	✓	✓	✓	✓

General Skills

Course	Program covered ILOs							
	2/3/2/ A	2/3/2/ B	2/3/2/ C	2/3/2/ D	2/3/2/ E	2/3/2/ F	2/3/2/ G	2/3/2/ H
Basic course : Course 1: basic Pharmacology and Physiology				✓	✓			✓
Or Basic Pharmacology and Biochemistry				✓	✓			✓
Or Basic Pharmacology and Microbiology				✓	✓			✓
Specialized course: Course 2 :Advanced Pharmacology	✓	✓	✓	✓	✓	✓	✓	✓

General Skills

Course	Program covered ILOs						
	2/3/2/1	2/3/2/	2/3/2/	2/3/2/	2/3/2/	2/3/2/	2/3/2/
		J	K	L	M	N	O
Basic course : Course 1: basic Pharmacology and Physiology			✓		✓		
Or Basic Pharmacology and Biochemistry			✓		✓		
Or Basic Pharmacology and Microbiology			✓		✓		
Specialized course: Course 2 :Advanced Pharmacology	✓	✓	✓	✓	✓	✓	✓

*Annex 7,
Additional information:*

Department information:

- Research laboratory
- Microscopy room
- Ultramicrotome unit
- Museum including specimens in all specialties .

Staff members:

أعضاء هيئة التدريس ومعاونيهم

- أستاذ متفرغ/فكرى حسن حسن عثمان
- أستاذ متفرغ/محمود حمدى عبدالرحيم حسين
- أستاذ متفرغ/عادل عبدالودود جمعة سيد
- أستاذ متفرغ/حسين إسماعيل أحمد البيطار
- أستاذ متفرغ/رافقت عبدالبديع السيد عبدالعال
- أستاذ متفرغ/أحمد عثمان عبدالظاهر محمد
- أستاذ متفرغ/عبدالعظيم عبدالعز محمد عاصى
- أستاذ متفرغ /إيهاب سعيد إبراهيم الدسوقى
- أستاذ متفرغ /سعيدة عبدالرجال على على
- أستاذ متفرغ /مصطفى محمود حمدي عيد اللاه
- أستاذ متفرغ /مهران شاكر عبدالرحمن محمد (معار)
- أستاذ /باسل عبدالنعيم عبدالوهاب محمد (معار)
- أستاذ مساعد/عادل جلال أحمد الشيمى (معار)
- أستاذ /حنان سيد محمد فرغلى

- أستاذ مساعد/ رشا بخيت عبداللطيف محمد
- أستاذ مساعد /محمد مصطفى محمد عبدالرحمن
- أستاذ مساعد /محمد سالم هريدى عبدالفتاح
- مدرس/سهير محمد كامل معوض (معار)
- مدرس/صفاء يوسف سالم يوسف
- مدرس /ماجدة محمد يسرى فراج محمد
- مدرس/عبير محمد رشاد حسين جمعة
- مدرس/رومانى حلمى ثابت جرجس (معار)
- مدرس /إسراء السيد محمد عشرى
- مدرس/هویدا صابر سلامة على (معار)
- مدرس /إنجى أحمد عبدالرحمن على (معار)
- مدرس /إسراء عبدالخالق أحمد محمد
- مدرس/مروى عبدالرحيم أحمد رشوان
- مدرس /رانيا عبد المنعم عبد الامام عبد العزيز
- مدرس /لبنى على عبدالظاهر عبدالرحمن (معار)
- مدرس /أحمد محمد عبد الدايم أحمد (معار)
- مدرس /آلاء طلعت عبدالله عبدالحافظ
- مدرس /دعاء حمدى عبدالحميد عبدالحافظ
- مدرس /إيهاب أحمد محمد العواد
- مدرس مساعد/مى محمود عبدالحميد مرسى

- مدرس مساعد/سالي حمدي حليم قليني
- مدرس /مريم أشرف أمين نقولا
- مدرس مساعد/مروة جمال عبدالله جامع
- مدرس مساعد/إبتسام صابر عبد اللاه
- مدرس مساعد/محمود سيد صبرة
- مدرس مساعد/أميرة فوزي طه
- مدرس مساعد /محمد سيد مله سيد
- مدرس مساعد /نهلة إبراهيم أحمد الزعيم (بعثه)
- مدرس مساعد /أندرو زكريا زكا
- مدرس مساعد /أحمد بركات إبراهيم
- مدرس مساعد /أحمد محمد محمد محمود

Contact Us

Department of Medical Pharmacology

Faculty of Medicine

Assiut University, Egypt

Faculty are most easily found on our **Faculty Research page** <http://afm.edu.eg/>

Phone: +20-88-2411882

+20-88-2411806

(End of the program specification)

 **Opportunities within the department:**

- Computer Lab
- Drug Monitoring Lab
- Research lab including all human animal models
- Section for Western Blot .

 **Department quality control insurance for completing the program:**

- Evaluation by the Department head and staff members.
- Regular assessments.
- Log book monitoring

(End of the program specification)