Medical Doctorate (M.D.) Degree Program and Courses Specifications for Pharmacology

(According to currently applied bylaws)

Pharmacology Department
Faculty of Medicine
Assiut University
2022-2023

Assiut University
Faculty of Medicine
Quality Assurance Unit (QAU)

كلية الطب
جامعة أسيوط

M. D. degree of *Pharmacology*

A. Basic Information

- Program Title: Pharmacology
- Nature of the program: Single.
- Responsible Department: Pharmacology
- Program Academic Director (Head of the Department): Prof. Dr. Hanan Farghaly
- Coordinator (s):
  - Principle coordinator: Prof. Dr. Mahmoud Hamdy
  - Assistant coordinator (s) Dr. Rasha Bakheet

  Internal evaluators: Prof. Dr. Hanan Farghaly
- External evaluator: Dr. Mohammed Hasan Abdelhaleim
- 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: 7 courses

B. Professional Information

1- Program aims

1. To provide a deep-rooted knowledge of the essential principles of basic and physical sciences applicable to pharmacology.
2. To develop an ability to apply these principles to resolve specific common, uncommon, and rare problems in pharmacology.
3. To support acquisition of specific professional (basic and advanced) skills in experimental designs, procedures and the analysis of experimental data.
4. To promote professional development of communication skills and the ability to exploit modern information technology.
5. To develop the ability to work professionally either independently as a leadership or in a group health services team.
6. To encourage a sense of curiosity and enquiry, and an enthusiasm for guidelines and evidence based knowledge settings related to pharmacology.
7. To enable candidates to keep with international standards of pharmacologists learning and be able to learn higher updated level of progress of pharmacology published in recent text books.
8. To design the research problem according to the different available tools.

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

2/1- Knowledge and understanding:

A. Demonstrate in-depth knowledge and understanding of theories, basics and updated biomedical clinical epidemiological and socio behavioral sciences relevant to pharmacology as well as the evidence –based application of this knowledge to practice including health patient care.

B. Explain basics, methodology, tools and ethics of scientific medical, clinical research.

C. Mention ethical, medico logical principles and bylaws relevant to his practice in the field of pharmacology.

D. Mention principles and measurements of quality assurance and quality improvement in medical education and in practice of the concerned pharmacology.

E. Mention public health and health policy issues relevant to pharmacology and principles and methods of system –based improvement of related to his practice in the field of Pharmacology.

2/2 Intellectual outcomes

A. Apply the basic and clinically supportive sciences which are appropriate to pharmacology related conditions / problem / topics.

B. Demonstrate an investigatory and analytic thinking “problem – solving “approaches to relevant situations related to pharmacology.
C. Plan research projects.
D. Write scientific paper.

E. Participate in clinical or laboratory risk management activities as a part of clinical governance.
F. Plan for quality improvement in the field of medical education and practice in pharmacology.
G. Create / innovate plans, systems, and other issues for improvement of performance in his practice.
H. Present and defend his / her data in front of a panel of experts.
I. Formulate management plans and alternative decisions in different situations in the field of pharmacology.

2/3 Skills

2/3/1 Practical skills (Patient Care)

A. Master practical skills relevant to pharmacology for all common techniques and /or experiments.
B. Master practical skills with non-routine, laboratory skills and techniques and under increasingly difficult circumstances, while demonstrating, appropriate and effective competency
C. Master proficiency in performing available complex laboratory techniques and handling unexpected complications.
D. Gather essential and accurate information about practical and laboratory skills of pharmacology related conditions.
E. Make informed decisions about diagnostic laboratory tests for pharmacology related conditions.
F. Develop and carry out diagnostic and teaching plans for all pharmacology related conditions & skills.
G. Use information technology to support practical decisions and students education in all pharmacology related practical situations.
H. Provide health care or any relevant services aimed at preventing pharmacology related health problems.
I. Lead other professionals, including those from other disciplines, to provide practical& laboratory-focused care in pharmacology related conditions.

J. Write competently all forms of professional reports related to pharmacology (lab reports, experiments reports,) including reports evaluating these charts and sheets.

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. Demonstrate the competency of continuous evaluation of different types of practice including service provision to patients in the different areas of pharmacology field.
B. Appraise scientific evidence.
C. Continuously improve his practice including service provision to patients based on constant self-evaluation and life-long learning.
D. Participate in medical audits and research projects.
E. Practice skills of evidence-based Medicine (EBM).
F. Educate and evaluate students, mentors and other health professionals.
G. Design logbooks.
H. Design guidelines and standard protocols for different techniques and procedures.
I. Apply knowledge of study designs and statistical methods to the appraisal of pharmacology related studies.
J. Use information technology to manage information, access on- line medical information; for the important topics.

Interpersonal and Communication Skills

K- Master interpersonal and communication skills that result in the effective exchange of information and collaboration with patients, their families, and health professionals, including:-

- Present a case.
- Write a consultation note.
- Inform patients of a diagnosis and therapeutic plan, Completing and maintaining comprehensive timely and legible medical records.
- Teamwork skills.

L. Create and sustain a therapeutic and ethically sound relationship with patients.

M. Elicit and provide information using effective nonverbal, explanatory, questioning, and writing skills.

N. Work effectively with others as a member or leader of a health care team or other professional group.

Professionalism

O. Demonstrate respect, compassion, and integrity; a responsiveness to the needs of patients and society.

P. Demonstrate a commitment to ethical principles including provision or withholding of clinical care, confidentiality of patient information, informed consent, and business practices.

Q. Demonstrate sensitivity and responsiveness to others' culture, age, gender, and disabilities.

Systems-Based Practice

R. Work effectively in academic and health care delivery settings and systems related to pharmacology including good administrative and time management.

S. Practice cost-effective services provision and resource allocation that does not compromise quality.

T. Advocate for quality patient care and assist patients in dealing with system complexities.

U. Design, monitor and evaluate specification of under and post graduate courses and programs.

V. Act as a chair man for scientific meetings including time management

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

Academic standards for Medical Doctorate (MD) degree *(Pharmacology)*

Assiut Faculty of Medicine developed MD 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 3/2010. 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 (Bench mark)

1-ACGME (Accreditation Council for Graduate Medical Education).
http://www.acgme.org/acWebsite/navPages/nav_Public.asp
2- PHD Pharmacology, Georgetown University - http://pharmacology.georgetown.edu/gradstud.html

5- Program Structure

A. Duration of program: 4-6 years

B. Structure of the program:

Total number of credit points: = 420 CP

Master degree: 180 credit point

Didactic #: 37 (30.8%), practical 83 (69.2%), total 120 CP

Thesis (80) and researches (40): 120 CP (50%)

First part

Didactic 10 (100%), practical 0 (0 %), total 10 CP

Second part

Didactic 24, (22.4 %), practical 83 (77.6 %), total 107 CP

Elective courses: 3 credit points

#Didactic (lectures, seminars, tutorial)

<u>According the currently applied bylaws:</u>

Total courses: 120 credit point

Compulsory courses: 117 credit point (97.5%)

Elective courses: 3 credit point (2.5%)

	Credit points	**% from total**
▪ Basic science courses	10	2.3%
▪ Humanity and social courses	3	0.7%
▪ Speciality courses	107	25 %
▪ Others (Computer, …)	-	-
▪ Field training	-	-
Thesis	80	19 %
2 published researches	40	9 %
Master degree	180	

C-Program Time Table

Duration of program 4 years divided into

- Part 1

Program-related basic science courses

- Medical statistic
- Research methodology
- Medicolegal Aspects and Ethics in Medical Practice and Scientific Research

Students are allowed to sit the exams of these courses after 6 months from applying to the M D degree.

Students are allowed to sit the exams of the remaining basic science courses after 12 months from applying to the MD degree.

Thesis and 2 published researches

For the M D thesis;

MD thesis subject should be officially registered within 1 year from application to the MD degree,

Discussion and acceptance of the thesis should not be set before 24 months from registering the M D subject;

It could be discussed and accepted either before or after passing the second part of examination.

- Part 2

Program –related speciality courses and ILOs

Students are not allowed to sit the exams of these courses before 4 years from applying to the MD degree.

Two elective courses can be set during either the 1st or 2nd parts.

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

Total degrees 1700 marks.

500 marks for first part

1200 for second part

Written exam 40% - 70%.

Clinical/practical and oral exams 30% - 60%.

D-Curriculum Structure: (Courses):

Levels and 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 1) Course 1: Medical statistics and computer 2) Course 2: Research methods 3) Medicolegal aspects& ethics in medical practice and scientific research 4) Instrumental analysis 5) Molecular biology 6) Biotechnology	 FAC309A FAC309B **FAC310C** **PHA306A§** **PHA 304** **PHA307**	 1 1 1 3 2 2		 1 1 1 3 2 2
Elective courses*	3 points			
- Elective course 1 - Elective course 2				
Thesis	80 CP			
Published researches**	40 CP			
Second Part	Speciality courses 24 CP Speciality Practical Work (log Book) 83 CP			
Speciality course Course (7) Pharmacology - Unit 1 General Pharmacology - Unit 2 Advanced Pharmacology Unit 3: Experimental Pharmacology	PHA306B	24		24
Speciality Practical Work (83 CP)	PHA306B		83	83
Total of second part		**24**	**83**	**107**

#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#:

- Advanced medical statistics.
- Evidence based medicine.
- Advanced infection control.
- Quality assurance of medical education.
- Quality assurance of clinical practice.
- -Hospital management

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

3. Thesis / Researches:

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

**Another 40 points are appointed to acceptance or publication of one research from the thesis in international indexed medical journals or publication of 2 researches from the thesis in local specialized medical journals.

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:
     - Master degree in pharmacology.
  II. Specific Requirements:
     - Fluent in English (study language).

VACATIONS AND STUDY LEAVE

The current departmental policy is the current departmental policy is to release candidates from their teaching duties for 10-15 days prior to the scheduled date for the first and final certifying MD Degree 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 6 months from registering to the MD degree.
- Discussion of the MD thesis could be set after 2 years from officially registering the MD subject, after setting the second part exams.
- Examination of the second part cannot be set before 4 years from registering to the degree.

- The minimum duration of the program is 4 years

<u>The students are offered the degree when:</u>

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 MD thesis.
4. Acceptance or publication of one research from the thesis in international indexed medical journals or publication of 2 researches from the thesis in local specialized medical journals.

9-Program assessment methods and rules (Annex IV)

Method	ILOs measured
Written examinations: Structured essay questions Objective questions MCQ Problem solving	K & I
Practical/experimental Experimental/ cases reports 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 and Practical l Exam**		**Total**
Basic science courses:					
Course 1 Medical stastics and Research methodology	FAC309A FAC309B	70 35+35	30 15+15		100
Medicolegal Aspects & Ethics in Medical Practice and Scientific Research	FAC310C	35	15		50
-Instrumental analysis	PHA306A	100	50		150
Molecular biology	PHA304	50	50		100
-Biotechnology	PHA307	50	50		100
Second Part					
	Course code	written	Oral	Practical	Total
Speciality Courses	PHA306B	800	250	150	1200
Pharmacology Paper 1 Pharmacology Paper 2 Pharmacology Paper 3 Pharmacology Paper 4		200 200 200 200			

<u>* 25% of the oral exam for assessment of logbook</u>

Examination system:

First part:

- Written exam 2 hours in Medical Statistics and Research Methods + practical exam
- Written exam 1 hour in Medicolegal Aspects & Ethics in Medical Practice and Scientific Research + oral exam
- Written exam 3 hour in -Instrumental analysis Oral exam+ practical exam
- Written exam 2 hour in Molecular biology analysis Oral exam+ practical exam
- Written exam 2 hour in Biotechnology analysis Oral exam+ practical exam

Second part:

- Written exam four papers 3 hours for each in Pharmacology+ Oral exam+ practical exam in the form of 2 research proposals.

Elective courses

- Written exam one paper 1 hour in Elective course 1 + Oral & Practical exam
- Written exam one paper 1 hour in Elective course 2 + Oral & Practical exam

10-Program evaluation

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).

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:	**Prof. Dr.Mahmoud - Hamdy Dr.Rasha Bakheet**		**12/2021**
Head of the Responsible Department (Program Academic Director):	**Prof. Dr. Hanan Farghaly**		**12/2021**

Annex 1, Specifications for Courses / Modules

Annex 1: specifications for courses/ modules

First Part

Basic Course

Course 1: Medical statistics

Name of department: Public Health and Community Medicine
Faculty of medicine
Assiut University
2022-2023

1. Course data

- **Course Title: Medical statistics**
- **Course code: FAC309A**
- **Specialty: offered to all clinical and academic specialties**
- **Number of credit points: 1 credit point**
- **Department (s) delivering the course:** Pubic Health and Community Medicine
- **Coordinator (s):**
  - Course coordinator: Prof. Farag Mohammed Moftah
  - Assistant coordinator (s): Prof. Medhat Araby Khalil Saleh
- Date last reviewed: January -2022
- **Requirements (pre-requisites) if any:**
  - Completed Master degree in any of the academic or clinical departments of Medicine.

2. Course Aims

Enable gradute students to use statistical principles to improve their professional work and develop the concept of critical interpretation of data

3. Intended learning outcomes (ILOs):To be able to use statistical principals to manage data

A knowledge and understanding

ILOS	Methods of teaching/ learning	Methods of Evaluation
A. List the types of variables	Lecture and discussion	Written examination
B. Identify the methods of data collection	Lecture and discussion	Written examination
C. Describe the different sampling strategies	Lecture and discussion	Written examination
D. Identify types of tabular and graphic presentation of data	Lecture and discussion	Written examination
E. Identify measures of central tendency and dispersion	Lecture and discussion	Written examination
F. Identify the characters of normal distribution curve.	Lecture and discussion	Written examination
G. Detect the difference between parametric and non-parametric tests	Lecture and discussion	Written examination
H. Identify the concepts of correlation and regression	Lecture and discussion	Written examination

B. intellectual

ILOs	Methods of teaching/ learning	Methods of Evaluation
A. Describe the normal curves.	Lecture& Discussions	Written examination
B. Describe and summarize data	Lecture& Discussions	Written examination
C. Select the proper test of significance	Lecture& Discussions	Written examination
D. Interpret the proper test of significance	Lecture& Discussions	Written examination
E. Describe the difference between parametric and non-parametric tests	Lecture& Discussions	Written examination

C. Practical skills

ILOs	Methods of teaching/ learning	Methods of Evaluation
A. Design data entry files.	Tutorial on SPSS	Assignments SPSS exam
B. Validate data entry.	Tutorial on SPSS	Assignments SPSS exam
C. Manage data files.	Tutorial on SPSS	Assignments SPSS exam
D. Construct tables and graphs.	Tutorial on SPSS	Assignments SPSS exam
E. Calculate measures of central tendency and dispersion.	Tutorial on SPSS	Assignments SPSS exam
F. Select, apply and interpret the proper test of significance.	Tutorial on SPSS	Assignments SPSS exam

D general skills

ILOs	Methods of teaching/ learning	Methods of Evaluation
A. Appraise scientific evidence	Discussions	Research assignment
B. Use information technology to manage information, access on-line medical information; for the important topics.	tutorial	Research and audits' assignment

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

Time Schedule: First Part

Topic	Covered ILOs			
	Knowledge A	Intellectual B	Practical skills C	General Skills D
Introduction	A-F	A-D	-	A&B
Tables and graphics	D	A-D	-	A&B
Sampling	C	-	-	A&B
Methodology of data collection	B	-	-	A&B
Type of variables	A	-	-	A&B
Proportion test& Chi-square test	E,F	C&D	-	A&B
Student T test& Paired T test	E,F	C&D	F	A&B
ANOVA test	E,F	C&D	F	A&B
Non parametric tests	E,F	C&D	F	A&B
Discrimination analysis factor analysis	E,F	C&D	-	A&B
SPSS Introduction	A-F	A-D	-	A&B
Data entry and cleaning of data	A	A-D	A-C	A&B
Transforming of variables	A	A&B	A-C	A&B
Descriptive statistics	D	A-D	D&E	A&B
Graphic presentation	D	A&B	D	A&B
Chi square and interpretation of results	E,F	C&D	F	A&B
Correlation Regression	E,F	C&D	F	A&B
Multiple and logistic Regression	E,F	C&D	F	A&B

5. Course Methods of teaching/learning

1. Lectures
2. Assignments
3. Discussions
4. Exercises
5. Tutorial on SPSS v.16

6. Course assessment methods:

i. Assessment tools:

1. Attendance and active participation
2. Assignment
3. Practical SPSS examination
4. Written exam

ii. Time schedule: After 6 months from applying to the M D degree.

iii. Marks: 50 (35 for written exam and 15 for practical exam).

7. List of references

i. Lectures notes

Department lecture notes

ii. Essential books

- Medical Statistics: Book by Ramakrishna HK 2016
- Janet Peacock and Philip Peacock. Oxford Handbook of Medical Statistics (second edition.) Publisher: Oxford University Press, Print Publication Date: Nov 2010 Print ISBN-13: 9780199551286, Published online: Jun 2011. DOI: 10.1093/med/9780199551286.001.0001
- Leslie E. Daly MSc, PhD, Hon MFPHM,, Geoffrey J. Bourke MA, MD, FRCPI, FFPHM, FFPHMI, Interpretation and Uses of Medical Statistics, Fifth Edition, First published:1 January 2000, Print ISBN:9780632047635 |Online ISBN:9780470696750 |DOI:10.1002/9780470696750
- Marcello Pagano, Kimberlee Gauvreau: Principles of Biostatistics second edition published in 2000 by Brooks/Cole and then Cengage Learning. CRC Press, Feb 19, 2018 - Mathematics - 584 pages.

Iii- Recommended books

- Ji-Qian Fang (Sun Yat-Sen University, China) Handbook of Medical Statistics: https://doi.org/10.1142/10259 | September 2017.Pages: 852
- Robert H. Riffenburgh: Statistics in Medicine 4th Edition (2020). EvidenceEvidence Based Medicine How to practice and teach EBM.
- Discovering Statistics Using IBM SPSS Book by Andy Field, 2013.

iii. Periodicals, Web sites, etc

iv. **Periodicals , etc** Statistics in Medicine - Wiley Online Library

v. **Web sites** https://www.phc.ox.ac.uk/research/medical-statistics

8. Signatures

Course Coordinator: - Farag Mohammed Moftah	**Head of the Department:** - Prof. Eman Morsy Mohamed
Date: 10-1-2022	**Date**: 10-1-2022
Associated Coordinator: Prof. Medhat Araby Khalil Saleh	
Date: 10-1-2022	

Course 2: Research Methodology

Name of department: Public Health and Community Medicine
Faculty of medicine
Assiut University
2021-2022

1. Course data

- **Course Title: Research methodology**
- **Course code: FAC309B**
- **Specialty: Offered to all clinical and academic specialties**
- **Number of credit points: 1 credit point**
- **Department (s) delivering the course: Department of public health**
- **Coordinator (s):**
  - **Course coordinator:** Prof. Mahmoud Attia

  Assistant coordinator (s): Prof. Ekram Mohamed
  - Prof. Medhat Araby Khalil
- **Date last reviewed:** January 2022
- **Requirements (prerequisites) if any:**
  - **Completed Master degree in any of the academic or clinical departments of Medicine.**

2. Course Aims

To provide graduate students with the skills of:

- planning and implementing sound research
- writing a scientific research proposal

3. Intended learning outcomes (ILOs)

A knowledge and understanding

ILOs	Methods of teaching/ learning	Methods of Evaluation
A. Explain differences between different study designs.	Lecture and discussion Practical sessions Workshops	Written exam Log book assignments Practical exam
B. Identify sources and types of bias in research.	Lecture and discussion Practical sessions	Written exam Log book assignments Practical exam
C. Identify methods of data collection.	Lecture and discussion Practical sessions	Written exam Log book assignments
D. Select and design valid measurement tools for research.	Lecture and discussion Practical sessions Workshops	Written exam Log book assignments Practical exam
E. Explain ethical issues in conducting research on human subjects.	Lecture and discussion Practical sessions Workshops	Written exam Log book assignments
F. List the steps involved in proposal writing.	Lecture and discussion Practical sessions Workshops	Written exam Log book assignments Practical exam
G. Identify a research problem within a conceptual framework.	Lecture Discussion	Written exam Log book assignments

		Practical exam
H. Use the web sources to do a literature search	Practical tutorial on web	Log book assignment
I. Describe the rules of authorship in scientific writing.	Lecture and discussion Practical sessions Workshops	Written exam Log book assignments
J. Select the appropriate study design for the research question.	Lecture Practical sessions	Written exam Practical exam
K. Minimize bias in designing research.	Lecture	Written exam
L. Screening & theoretical background	Lectures	Written exam Practical exam
M. Mention the basic ethics for conducting a research and medicolegal principles relevant to data confidentiality.	lectures seminar	Written exam Practical exam

B. intellectual

Competency and Skills	Methods of teaching/ learning	Methods of Evaluation
A- Apply basic science & knowledge for appraising scientific literature.	Discussions &seminars	Written exam Practical exam
B- Design research and present study data, in seminars.	lecture seminar	log book assignments
C- Design suitable epidemiological study.	lecture seminar	log book assignments
D- Design strategies for resolving ethical concerns in research, law, and regulations.	lecture Workshops	Written exam log book assignments
E- Apply coherently synthesize ideas and integrate lateral and vertical thinking.	lecture Workshops	log book assignments
F- Evaluate screening tests and interpreting their uses in different population.	lecture	Written exam Practical exam

C. Practical skills

Competency and Skills	Methods of teaching/ learning	Methods of Evaluation
A- Conduct epidemiological studies, screening and surveys.	lectures seminar	written exam log book assignments
B- Identify steps required in fielding the study.	Lecture	Assignments Written exam
C- Managing data collection team.	lectures seminar	log book assignments
D- Identify steps required for calculation sensitivity, specificity, positive predictive value, negative predictive value, accuracy of a screening test.	Lecture Practical sessions	Assignments Written exam Practical exam
E- Be able to define and apply the epidemiologic criteria of causality and be able to distinguish between a measure of association and evidence of causality.	Lecture Practical sessions	Assignments Written exam Practical exam
F- Synthesize information from multiple sources for research writing and the ability to perform paper critique .	Lecture Practical sessions	Assignments Written exam Practical exam
G- Identify bias and confounding in epidemiological study designs, their types and ways to control them in various types of biases.	Lecture Practical sessions	Assignments Written exam Practical exam

D General skills
Practice-Based Learning and Improvement

ILOs	Methods of teaching/ learning	Methods of Evaluation
A- Scientific paper and proposal writing skills: be able to write an introduction, objectives and the methodological section.	Tutorial	Written examination
B- Learn authorship ethical rules.	Tutorial	Written examination
C- Perform practice-based improvement activities using a systematic methodology (audit, logbook, critical appraisal)	- Lectures -Practical sessions - Discussion - Readings	critical appraisal
D- Appraise evidence from scientific studies(journal club)	- Lectures -Practical sessions - Discussion - Readings	critical appraisal
E- Conduct epidemiological studies, screening and surveys.	- Lectures -Practical sessions - Discussion - Readings	attendance and participation
F- Facilitate training of junior students and other health care professionals in different screening activities.	Field work Participation in projects	attendance and participation

Interpersonal and Communication Skills

ILOs	Methods of teaching/ learning	Methods of Evaluation
G- Maintain ethically sound relationship with community members.	- Lectures -Practical sessions - Discussion - Readings	Written exams
H- Provide information using effective nonverbal, explanatory, questioning, and writing skills.	- Lectures -Practical sessions - Discussion - Readings	Written exams Practical exams
I- Present results of researches in seminars.	- Lectures -Practical sessions - Discussion - Readings	Log book assignments

Professionalism

ILOs	Methods of teaching/ learning	Methods of Evaluation
J- Demonstrate respect, compassion, and integrity to the needs of society.	- Lectures - Discussion - Readings	Written exams
K- Manage potential conflicts of interest encountered by practitioners, researchers, and organizations.	- Lectures - Discussion - Readings	Written exams
L- Design strategies for resolving ethical concerns in research, law, and regulations.	Lectures - Discussion - Readings	Written exams Practical exams
M- Demonstrate ways to control for confounding in the analysis phase of a study	Lectures - Discussion - Readings	Written exams Practical exams
N- Demonstrate a commitment to ethical principles including confidentiality of participants' information and informed consent.	Lectures - Discussion - Readings	Written exams
O- Assess ethical considerations in developing communications and promotional initiatives.	- Lectures - Discussion - Readings	Written exams

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

Time Schedule: First Part

Topic	Covered ILOs			
	Knowledge A	**Intellectual B**	**Practical skills C**	**General Skills D**
Over view on research conduction and research ethics	A&E	A-D	A-C	C-G, I,L&M-O
How to write a research proposal	F,I	E	F	A-C&H
Observational study design	A& D	B & C	D	E & F
Experimental study design	A& D	B & C	B	E & F
Evaluation of diagnostic tests (Screening)	L	A	B& E	F
Systematic reviews and meta analysis	G, H & M	E& F	F	C, D
Confounding, bias & effect modification	B & K	D	E & G	M

5. Course Methods of teaching/learning:

1. Lectures
2. Assignments
3. Discussion
4. Exercises

6. Course assessment methods:

i. Assessment tools:

1. Attendance and participation
2. Log book assignments
3. Written examination
4. Practical examination

ii. Time schedule: After 6 months from applying to the M D degree.

iii. Marks: 50 (35 for written exam and 15 for practical exam).

7. List of references

i. Lectures notes

- Department lecture notes

ii. Essential books

- Research Design: Qualitative, Quantitative and Mixed Methods Approaches 4th Edition by John W. CreswellSAGE Publications, Inc; 4th edition (January 1, 2014)
- Research methodology: A step – by – step Guide for Beginners. Ranjit Kumar, 2020. Second edition https://books.google.com.eg/books?
- Medical Research Essentials Rania Esteitie, McGraw Hill Professional, third edition, Feb 5, 2014 - Medical - 104 pages
- Research Methodology in the Medical and Biological Sciences Petter Laake, Haakon Breien Benestad, Bjorn R. Reino Olsen, 4th edition , Academic Press, Nov 5, 2007 - Science - 512 pages

iv. Recommended books

- Research Methods in Education 7th Edition, by Louis Cohen, Lawrence Manion, Keith Morrison Publisher: Routledge; (April 22, 2011) www.routledge.com/textbooks/cohen7e.

- Research Methodology: A Practical and Scientific Approach Vinayak Bairagi, Mousami V. Munot · 2019, Research Methodology: A Practical and Scientific Approach - Google Books
- Based Medicine How to practice and teach EBM. David Sachett, Sharon E. Straus, W. Scott Richardson , William Rosenberg R.Brain Haynes
- Dissertation workshop open courseware JHSPH

8. Signatures

Course Coordinator: Prof.Mahmoud Attia	**Head of the Department:** Prof. Eman Morsy Mohamed
Date: 10-1-2022	**Date**: 10-1-2022

Course 3: Medicolegal Aspects and Ethics in Medical Practice and Scientific Research

Name of department: Forensic medicine and clinical toxicology
Faculty of medicine
Assiut University

1. Course data

- **Course Title: Medicolegal Aspects and Ethics in Medical Practice and Scientific Research**
- **Course code: FAC310C**
- **Speciality: All Academic Departments (1st part).**
- **Number of credit points: 1 credit point**
- **Department (s) delivering the course: Forensic Medicine and Clinical Toxicology**
- **Coordinator (s):**
  - **Course coordinator:** Prof. Ghada Omran
  - **Assistant coordinator (s)**. Prof. Zaghloul Thabet

- **Date last reviewed: 17/4/2022.**

- **Requirements (prerequisites) if any :**
  - **Completed Master degree.**

2. Course Aims

To describe the basic ethical and medicolegal principles and bylaws relevant to practice in the field of academic specialties

3. Intended learning outcomes (ILOs):

A. knowledge and understanding

Competency and Skills	Methods of teaching/ learning	Methods of Evaluation
A. Mention medical ethics.	Lecture and discussion	Oral &Written exam
B. Explain ethics in research.(human and animal)	Lecture and discussion	Oral &Written exam
C. Mention medical laws.	Lecture and discussion	Oral &Written exam
D. List causes of medical responsibilities.	Lecture and discussion	Oral &Written exam

B. intellectual

Competency and Skills	Methods of teaching/ learning	Methods of Evaluation
A-Design and present case , seminars in common problem In medical responsibilities, medical ethics and ethics in research-	Lecture and discussion	Oral &Written exam

C. Practical skills

Competency and Skills	Methods of teaching/ learning	Methods of Evaluation
A. Write medical and legal reports.	Discussion	Discussion
B. Identify ethics in research.	Discussion	Discussion
C. Identify medical laws.	Discussion	Discussion
D. Identify medical responsibilities.	Discussion	Discussion

D. General skills

Practice-Based Learning and Improvement

Competency and Skills	Methods of teaching/ learning	Methods of Evaluation
A. Make timely and legible medical records	Lecture and discussion	Global rating logbook
B. Acquire the teamwork skills	Lecture and discussion	Global rating logbook

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

Time Schedule: First Part

Topic	Covered ILOs			
	Knowledge A	**Intellectual** B	**Practical skills** C	**General Skills** D
1. Medical ethics	A,C,D	A	A,C,D	A,B
2. Ethics in research	B,C,D	A	B, ,C,D	A,B

5. Course Methods of teaching/learning:

1. Lectures.
2. Discussions.
3. Exercises.

6. Course assessment methods:

i. Assessment tools:

1. Written examination.
2. Attendance and active participation.
3. Oral examination.

ii. Time schedule: After 6 months from applying to the M D degree.

iii. Marks: 50 (35 for written exam and 15 for oral exam).

7. List of references

i. Lectures notes

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

ii. Essential books

- Bernard Knight and Pekka Saukko (2015: Knight Forensic Pathology. Hodder Arnold press
- Goldfrank, Lewis R.; Howland, Mary Ann; Hoffman, Robert S.; Nelson, Ewis S.; Lewin, Neal A (2019): Goldfrank's Toxicologic Emergencies, 11th ed. McGraw Hill / Medical.
- Medical Ethics Manual. World medical association. Third edition 2015.
- Medical ethics and law. Dominic Wilkinson, 3rd edition 2019.

iii. Recommended books

- Biswas Gautam (2021): Review of Forensic Medicine & Toxicology. 5th ed. Jaypee Brothers Medical Pub.

iv. Journal and web site

- Journals of all Egyptian Universities of Forensic Medicine and Clinical Toxicology.
- All International Journals of Forensic Medicine and Clinical Toxicology which available in the university network at www.sciencedirect.com. As :
  - Forensic Science International Journal.
  - Toxicology Letter.

v. others

8. Signatures

- **Course Coordinator: Prof. Ghada Omran**	- **Head of the Department: Prof. Randa Hussein Abdelhady**
Date: 17-4-2022	**Date: 17-4-2022**

Course 4: Insrumental analysis

- **Name of department: *Pharmacology***
- **Faculty of medicine**
- **AssiutUniversity**
- **2022-2023**

I. Course data

- **Course Title: Insrumental analysis**
- **Course code: PHA306A§**
- **Speciality…… Pharmacology**
  - **Number of Credit points:** 3 cp (2 credit point for didactic and 1 point for training).
- **Department (s) delivering the course: Pharmacology department,Faculty of medicine,Assiut University in conjunction with Faculty of Pharmacy**
- **Coordinator (s):**
  - **Course coordinator: Prof. Dr / Mahmoud Hamdy**
  - **Assistant coordinator (s) Dr / Rasha Bakheet**
- **Date last reviewed: 12/2021**
- **Requirements (prerequisites) if any :**
- **- M.D. degree registrars students should had master degree in pharmacology**
- **Requirements from the students to achieve course ILOs are clarified in the joining log book.**

2. Course Aims

1) to provide students with adequate knowledge about instrumental analysis of drugs

3. Course intending learning outcomes (ILOs):

A-Knowledge and understanding

ILOs	Methods of teaching/ Learning	*Methods of Evaluation*
A. Describe different instruments used in drug analysis	Didactic (lectures, (seminars, tutorial ,journal club -	Written - exam Oral exam - Log book -
B. Mention the details of different applications of these instruments		

B-Intellectual outcomes

ILOs	Methods of teaching/ learning	Methods of Evaluation
A. Design / present case , seminars in common problem measurements of drug levels	Didactic (lectures, (seminars, tutorial ,journal club -	Written - exam Oral exam - Log book -
B. Apply the basic and clinically supportive sciences which are appropriate to pharmacology related conditions / problem / topics.		
C. Demonstrate an investigatory and analytic thinking "problem – solving "approaches to clinical situation related to drug measurement		
D. Conduct or share in research projects.		
E. Write scientific papers.		
F. Participate in the management of risky conditions related to drug measurement		
G. Plan for quality improvement in the field of medical education and professional practice in pharmacology		
H. Create / innovate plans, systems, and other issues for improvement of performance in his practice.		
I. Present and defend his / her data in front of a panel experts		

C-Practical skills

ILOs	Methods of teaching/ learning	Methods of Evaluation
A. Take history and measurement of drug levels		
B. The procedures and laboratory experiments for different drug samples		
C. Prescribe the laboratory measurements for different samples		

D-General Skills

Practice-Based Learning and Improvement

ILOs	Methods of teaching/ learning	Methods of Evaluation
A. perform the following basic lab skills essential to the course: of different drug measurement		
B. perform the following advanced lab skills essential to the course: of different drug measurement		
C. Use instruments and devices in evaluation of different drug measurement		
D. Write and evaluate of the following reports: of different drug samples		
E. Perform the following basic experiments in related basic sciences to be utilized in the research work:		

Interpersonal and Communication Skills

ILOs	Methods of teaching/ learning	Methods of Evaluation
A. Create and sustain a therapeutic and ethically sound relationship with patients		
B. Perform the following oral communications: About the result of the work --		
C. Fill the following reports: ---- Pre-experiment sheet Final comment on the results of the experiment or investigation		
D. Work effectively with others as a member or leader of a health care team e.g. in labor ward		

Professionalism

ILOs	Methods of teaching/ Learning	Methods of Evaluation
E. Demonstrate respect and integrity; a responsiveness to the needs of patients and society that supersedes self-interest.		1. Objective structured clinical examination
F. Demonstrate a commitment to ethical principles pertaining to provision or withholding of clinical care		

Systems-Based Practice

ILOs	Methods of teaching/ Learning	Methods of Evaluation
G. Work effectively in different laboratories systems.		1. 360o global rating
H. Practice cost-effective health care and resource allocation that does not compromise quality of care		1. Check list evaluation of live or recorded performance
I. Advocate for quality patient care and assist patients in dealing with system complexities		1. 360o global rating

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

Time Schedule: Second part

Topic	Covered ILOs			
	Knowledge	Intellectual	Practical skill	General Skills
Gas chromatography	x			
HPLC	x	x	x	x
NMR		X	x	x
Spectrophotometry	x	x	x	x
ELISA	x	x	x	x

5. Course Methods of teaching/learning:

1- Lectures
2- Discussion sessions
3- Practical sessions
4- Office hours

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

1- Lectures
2- Discussion sessions
3- Practical sessions
4- Office hours

7. Course assessment methods:

i. Assessment tools: written examination (First paper) 50%
practical examination and oral examination 50%
ii. Time schedule: As regulated by the postgraduate studies rules and approved by the faculty vice dean of post graduate studies and the faculty and university councils.
iii. Marks: 130

8. List of references

i. Lectures notes

prepared by the staff members of the parasitology department

ii. Essential books

Principles of instrumental analysis

by Douglas Schogh,2002.

9. Signatures

Course Coordinator: Prof Dr / Mahmoud Hamdy **Dr.Rasha Bakheet**	**Head of the Department: Prof Dr / Hanan** **Farghaly**
Date: 12/2021	**Date: Date: 12/2021**

Course 5: Molecular Biology

- **Name of department: *Pharmacology***
- **Faculty of medicine**
- **AssiutUniversity**
- **2022-2023**

I. Course data

- **Course Title: …Molecular Biology**
- **Course code: PHA304**

- **Speciality…… Medical pharmacology**
  - **Number of Credit points:** 2 (1 credit point for didactic and 1 point for training).
- **Department (s) delivering the course: Pharmacology department,Faculty of medicine,Assiut University**

- **Coordinator (s):**
  - **Course coordinator: Prof. Dr / Mahmoud Hamdy**
  - **Assistant coordinator (s) Dr / Rasha Bakheet**

- **Date last reviewed:** 902021
- **Requirements (prerequisites) if any :**
  - **- M.D. degree registrars students should had master degree in pharmacology**
- **Requirements from the students to achieve course ILOs are clarified in the joining log book.**

2. Course Aims

1) To provide students with adequate knowledge about DNA, RNA
2) To provide student with knowledge concerning different techniques of PCR
3)To enable students to understand the pharmacogenomics

3. Course intending learning outcomes (ILOs):

A-Knowledge and understanding

ILOs	Methods of teaching/ learning	*Methods of Evaluation*
A,To provide students with adequate knowledge about DNA, RNA	Senior staff Experience Didactic (lectures, (seminars, tutorial ,journal club - -	Written - exam Oral exam - Log book -
B.To provide student with knowledge concerning different techniques of PCR		
C.To enable students to understand the pharmacogenomics		

B-Intellectual outcomes

ILOs	Methods of teaching/ learning	Methods of Evaluation
A-To enable students to understand the pharmacogenomics, genotyping and their relations to drugs use	Didactic (lectures, (seminars, tutorial ,journal club - -	
B-Design / present case , seminars in different techniques of PCR		Written - exam Oral exam - Log book -
C-Apply the basic and clinically supportive sciences which are appropriate to DNA, RNA		
D-Conduct or share in research projects.		
E-Write scientific papers.		
F-Create / innovate plans, systems, and other issues for improvement of performance in his practice.		
G-Present and defend his / her data in front of a panel of experts		

C-Practical skills

ILOs	Methods of teaching/ learning	Methods of Evaluation
A-Perform the following basic lab skills essential to the course: - Principles of DNA extraction - Principles of PCR of blood samples -	supervision Written & oral communication. Discussions in seminars Scientific meetings participate in seminars This close supervision allows for frequent short episodes of teaching.	Log book Practical and oral examination
B-Use instruments and devices in performance of PCR tests - The use of departmental protocols for the handling; of specimens including identification, and documentation	Routine work: The most important learning experience will be day-to-day work.	Log book Practical and oral examination
C-Use information technology to support decisions in common situations related to pharmacology	-Cases presentation	Log book Practical and oral examination
D-Develop and carry out plans for performing experiments related to pharmacology	Participate in seminars	Log book Practical and oral examination

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 (logbook)	Log book and supervision Written & oral communication Journal clubs	Log book Portfolios Procedure/case presentation
B. Appraises evidence from scientific studies: Researches and evidence based practice and internet updates.	Discussions in seminars Scientific meetings	
C. Participate in one audit related to the course		
D. Perform data management including data entry and analysis.		
E. Facilitate learning of junior students and other health care professionals.		

Interpersonal and Communication Skills

ILOs	Methods of teaching/ learning	Methods of Evaluation
F. Maintain ethically sound relationship with others.	Observation & supervision	Simulation Record review (report
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		
J. Present a case in seminars and scientific meetings…		
K. Write a report in PCR		

Professionalism

ILOs	*Methods of teaching/ learning*	*Methods of Evaluation*
L-. Demonstrate respect, compassion, responsiveness to the needs of patients and society	Observation & supervision Educational prescription	Objective structured practical examination 2.Student survey
M. Demonstrate a commitment to ethical principles	Didactic (lectures, seminars, tutorial	

Systems-Based Practice

ILOs	**Methods of teaching/ learning**	**Methods of Evaluation**
O. Work effectively in relevant laboratories	Observation & supervision Didactic Didactic (lectures, seminars, tutorial Educational prescription	1-student survey 2.portfolios
P. Studying genomics and pharmacogenomics		
Q . Studying relations of drugs to genotyping of patients		

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

Time Schedule: Second part

Topic	Covered ILOs			
	Knowledge	**Intellectual**	**Practical skill**	**General Skills**
Introduction to General Laboratory techniques	**x**			
Different Laboratory techniques used PCR	**x**	**x**	**x**	**x**
• **Laboratory techniques** used in DNA and RNA assays		**X**	**x**	**x**
• **Laboratory techniques** used in identification of genotyping	**x**	**x**	**x**	**x**

5. Course Methods of teaching/learning:

1. Lectures
2. Discussion sessions
3. Practical sessions
4. Office hours
5. Multihead microscopic slide seminars

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

1- Lectures
2- Discussion sessions
3- Practical sessions
4- Office hours

7. Course assessment methods:

i. Assessment tools: written examination (First paper) 50%
practical examination and oral examination 50%

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

iii. Marks: 130

8. List of references

i. Lectures notes

Course notes

Staff members print out of lectures and/or CD copies

ii. Essential books

Goodman &Gilman's the pharmacological basis of therapeutics 13^{th} edition.

iv. Periodicals, Web sites, … etc

- Egyptian Journal of Basic and Clinical pharmacology

Web sites

http://www.medscape.com/pharmacist

9. Signatures

Course Coordinator: Prof Dr / Mahmoud Hamdy Dr.Rasha Bakheet	**Head of the Department: Prof Dr / Hanan Farghaly**
Date: 12/2021	**Date: 12/2021**

Course 6
Biotechnology

- **Name of department: *Pharmacology***
- **Faculty of medicine**
- **AssiutUniversity**
- **2022-2023**

I. Course data

- **Course Title: Biotechnology**
- **Course code: PHA307**
- **Speciality…… Medical Pharmacology**
- **Number of Credit points:** 2 (1 credit point for didactic and 1 point for training).
- **Department (s) delivering the course: Pharmacology department,Faculty of medicine,Assiut University**
- **Coordinator (s):**
  - **Course coordinator: Prof. Dr / Mahmoud Hamdy**
  - **Assistant coordinator (s) Dr / Rasha Bakheet**
- **Date last reviewed:** 12-2021
- **Requirements (prerequisites) if any :**
- **- M.D. degree registrars students should had master degree in pharmacology**
- **Requirements from the students to achieve course ILOs are clarified in the joining log book.**

2. Course Aims

1) To provide students with adequate knowledge about drugs produced by recombinant DNA technology

2) To provide student with knowledge concerning different techniques of recombinant DNA technology

3. Course intending learning outcomes (ILOs):

A-Knowledge and understanding

ILOs	Methods of teaching/ learning	*Methods of Evaluation*
A,To provide students with adequate knowledge about drugs produced by recombinant DNA technology	Senior staff Experience Didactic (lectures, (seminars, tutorial ,journal club - -	Written - exam Oral exam - Log book -
B.To provide student with knowledge concerning different techniques of recombinant DNA technology		
C.To enable students to understand the DNA technology		

B-Intellectual outcomes

ILOs	Methods of teaching/ learning	Methods of Evaluation
A-To enable students to understand the different techniques of recombinant DNA technology	Didactic (lectures, (seminars, tutorial ,journal club - -	
B-Design / present case , seminars in different techniques different techniques of drugs produced by recombinant DNA technology		Written - exam Oral exam - Log book -
C-Apply the basic and clinically supportive sciences which are appropriate to DNA, RNA		
D-Conduct or share in research projects.		
E-Write scientific papers.		
F-Create / innovate plans, systems, and other issues for improvement of performance in his practice.		
G-Present and defend his / her data in front of a panel of experts		

C-Practical skills

ILOs	Methods of teaching/ learning	Methods of Evaluation
H-Perform the following basic lab skills essential to the course: different techniques of recombinant DNA technology -	supervision Written & oral communication. Discussions in seminars Scientific meetings participate in seminars This close supervision allows for frequent short episodes of teaching.	Log book Practical and oral examination
I-Use instruments and devices in performance of different techniques of recombinant DNA technology tests - The use of protocols for the handling; of specimens including identification, and documentation	Routine work: The most important learning experience will be day-to-day work.	Log book Practical and oral examination
J-Use information technology to support decisions in common situations related to pharmacology	-Cases presentation	Log book Practical and oral examination
K-Develop and carry out plans for performing experiments related to pharmacology	Participate in seminars	Log book Practical and oral examination

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 (logbook)	Log book and supervision Written & oral communication Journal clubs	Log book Portfolios Procedure/case presentation
B. Appraises evidence from scientific studies: Researches and evidence based practice and internet updates.	Discussions in seminars Scientific meetings	
C. Participate in one audit related to the course		
D. Perform data management including data entry and analysis.		
E. Facilitate learning of junior students and other health care professionals.		

Interpersonal and Communication Skills

ILOs	Methods of teaching/ learning	Methods of Evaluation
F. Maintain ethically sound relationship with others.	Observation & supervision	Simulation Record review (report
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		
J. Present a case in seminars and scientific meetings…		
K. Write a reports concerning techniques of recombinant DNA technology		

Professionalism

ILOs	*Methods of teaching/ learning*	*Methods of Evaluation*
L-. Demonstrate respect, compassion, responsiveness to the needs of patients and society	Observation & supervision Educational prescription	Objective structured practical examination 2.Student survey
M. Demonstrate a commitment to ethical principles	Didactic (lectures, seminars, tutorial	

Systems-Based Practice

ILOs	**Methods of teaching/ learning**	**Methods of Evaluation**
O. Work effectively in relevant laboratories	Observation & supervision Didactic Didactic (lectures, seminars, tutorial Educational prescription	1-student survey 2.portfolios
P. Studying different techniques of recombinant DNA technology		
Q . Studying different drugs produced by techniques of recombinant DNA technology		

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

Time Schedule: Second part

Topic	Covered ILOs			
	Knowledge	**Intellectual**	**Practical skill**	**General Skills**
Introduction to General Laboratory techniques	**x**			
Different Laboratory techniques of recombinant DNA technology	**x**	**x**	**x**	**x**
• **Laboratory techniques** used in DNA and RNA assays		**X**	**x**	**x**
• **Laboratory techniques** used in identification drugs produced by recombinant DNA technology	**x**	**x**	**x**	**x**

5. Course Methods of teaching/learning:

- Lectures
- Discussion sessions
- Practical sessions
- Office hours
- Multihead microscopic slide seminars

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

1- Lectures
2- Discussion sessions
3- Practical sessions
4- Office hours

7. Course assessment methods:

i. Assessment tools: written examination (First paper) 50%
practical examination and oral examination 50%
ii. Time schedule: As regulated by the postgraduate studies rules and approved by the faculty vice dean of post graduate studies and the faculty and university councils.
iii. Marks: 90

8. List of references

i. Lectures notes

Course notes

Staff members print out of lectures and/or CD copies

ii. Essential books

A text book of biotechnology, 2012.

iv. Periodicals, Web sites, … etc

- Egyptian Journal of pharmacology

Web sites

http://www.medscape.com/pharmacist

9. Signatures

Course Coordinator: Prof Dr / Mahmoud Hamdy Dr,Rasha Bakheet	**Head of the Department: Prof Dr / Hanan Farghaly**
Date: 12/2021	**Date: 12/2021**

Second Part

Second part: Speciality course
Course 7: Pharmacology

Name of department: Pharmacology
Faculty of Medicine,
Assiut University,
2022-2023

1. Course data

- **Course Title:** Advanced Pharmacology
- **Course code:** PHA306B
- **Speciality:** Pharmacology
- **Number of credit points:** 107 credit point – didactic 24 credit point (22.4%) - practical 83 credit point (77.6%)
- **Department (s) delivering the course:** Medical Pharmacology **Department.**
- **Coordinator (s):**
  - as approved by Pharmacology Department council:
  - **Course coordinator:** Dr. Rasha Bakheet
- **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.**
- **The specialized course is divided into 3 units including the following:**
  - Unit 1 Pharmacology I (general basic pharmacology).
  - Unit II Pharmacology II (systematic pharmacology)
  - Unit III Experimental pharmacology (including clinical trial).

2. Course Aims

Advanced Pharmacology is the science which seeks to explain how drugs work in depth. This can be at the molecular, cellular, tissue or whole body level; therefore the pharmacologist will need to understand in depth 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 purpose of the course is

2/1- to build on the candidate' previously obtained knowledge in the field of Pharmacology and expand it to a new dimension in updated detailed view in depth of different interest (i.e. detailed updated knowledge and principles, practical skills , self learning and practice improvement in system base practice and creation)in different eras/ units such as basic sciences , biological and molecular related to general and systematic pharmacology and experimental pharmacology and clinical trial in practice.

2/2- to provide professional pharmacological advice and evaluation in drugs administration and prescription in different systematic diseases at any patient circumstances with or without comorbid risky or precaution conditions of drugs administrations

3. Course intended learning outcomes (ILOs):

Unit 1:
(General pharmacology)

A-Knowledge and understanding

ILOs	Methods of teaching/ learning	*Methods of Evaluation*
A. Describe in depth Principles and facts related to General basics pharmacology and basic sciences related to pharmacology (medical Physiology , biochemistery , biology) including : • Pharmacokinetics and clinical pharmacokinetics • Pharmacodynamics • pharmacogenomics.	Lectures -workshops -Literatures and Seminars. -Different search engines & Data base	*Written and oral examinations Logbook Portfolio*
B. Mention the updated details of different principles and facts of human physiology and basic sciences related to general basic pharmacology.		
C. State update and evidence based Knowledge related to general basics pharmacology.		
D. Memorize the facts and principles of the other relevant basic and clinically supportive sciences related to basics of general pharmacology (i.e. medical physiology, biochemistry).		
E. Mention the basic ethical and medico legal principles revenant to general basics pharmacology.		
F. Explain 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

ILOs	Methods of teaching/ learning	Methods of Evaluation
A. Design , present seminars in common problem related to General basics pharmacology	Lectures -workshops -Literatures And Seminars. -Different search engines & Data base	*Written and oral examinations Logbook Portfolio*
B. Apply the basic and clinically supportive sciences which are appropriate to the General basics pharmacology related conditions and topics.		
C. Demonstrate an investigatory and analytic thinking "approaches to situation related to General basics pharmacology.		
D. Conduct or share in research projects.		
E. Write scientific papers.		
F. Participate in the management of related complex issues both systematically and creatively, and to assemble, assimilate and analyse critically a range of information including both scientific data and library-based material.l		
G. Plan for quality improvement in the field of medical education and professional practice in general basics pharmacology.		
H. Create plan and other issues for improvement of performance in his practice.		
I. Present and defend his / her data in front of a panel of experts		
J. Formulate management plans and alternative decisions in different situations in the field of General basics pharmacology		

C. Practical skills

ILOs	Methods of teaching/ learning	Methods of Evaluation
A. Perform the following basic lab skills essential to basic pharmacology including experimentation safely and effectively in lab.	Practical Training Experiments Procedures Techniques,	Practical exam Experimental Case discussion Chick list Report logbook
B. Perform the advanced lab skills essential to basic pharmacology including the following: C. TDM D. Designing research proposals E. Immunohistochemistry F. Pharmacogenetics		
C-Use instruments and devices in basic pharmacology		
D-Interpret the non invasive &invasive procedures and experiments in pharmacology		
E-Perform the non invasive& invasive procedures and experiments.		
F-Perform the basic experiments in related basic sciences to be utilized in the research work of basic pharmacology.		
G-Use information technology to support decisions in common situations related to experimental pharmacology		
H- Develop and carry out diagnostic and teaching plans for all experimental pharmacology related conditions & skills.		
I-Counsel and educate		

• Patients and their family about drug administration indication, Contraindication , hypersensitivity, side effect, therapeutic clinical trial and drug resistance • Students, technicians and junior staff, about conditions related to Pharmacology; including handling of samples, devices, safety and maintenance of laboratory equipments.		
J-Use information technology to support decisions in common conditions related to experimental pharmacology		
K-Provide health care services aimed at preventing experimental pharmacology limitations and problems.		
L- Work with health care professionals, including those from other disciplines, to provide patient-focused care.		
M- Write and evaluate competently all forms of professional reports related to the experimental pharmacology i.e. (lab reports, experiments reports,)		

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 in the common problems (plan and conduct audit cycles)	-Observation and supervision Journal club	-Log book Portfolio.
B- Locate, appraises, and assimilates evidence		

from scientific studies related to health problems.		
C-Apply knowledge of study designs and statistical methods to the appraisal of studies		
D-Use information technology to manage information, access on-line medical information; and support their own education		
E-Lead the learning of students and other health care professionals.		

Interpersonal and Communication Skills

ILOs	Methods of teaching/ learning	Methods of Evaluation
A-Perform the following oral communications: With students and colleagues.	-Observation and supervision -Written & oral communication	-Log book Portfolio.
B--Work effectively with others as a member or leader of a health care team .		

Professionalism

ILOs	Methods of teaching/ Learning	Methods of Evaluation
C--Demonstrate sensitivity and responsiveness to others ' culture, age, gender, and disabilities	Observation and supervision	1. Objective structured clinical examination 2. Patient survey

Systems-Based Practice

ILOs	Methods of teaching/ learning	Methods of Evaluation
D-Work effectively in different health care delivery settings and systems.	Observation and supervision	1. 360o global rating 1. Check list evaluation of live or recorded performance
E-Advocate for quality health care and assist in dealing with system complexities		1. 360o global rating 2. Patient survey
F-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		

Unit 2: Advanced Pharmacology)

A-Knowledge and understanding

ILOs	Methods of teaching/ learning	*Methods of Evaluation*
A-Describe in depth the advanced principles and facts related to drug metabolism in different conditions and systemic diseases related to Systemic pharmacology(pharmacology II) including the following:	-Lectures -workshops -Literatures And Seminars.	*Written, preparation of two research proposal,*

• Cardiovascular pharmacology. • Respiratory pharmacology. • Neuropsychopharmacology. • Immunopharmacology. • Inflammation. • Chemotherapy. • GIT and tropical diseases.	-Different search engines & Data base	*methodology and interpretation of therapeutic drug monitoring reports and oral examinations*
B-Mention the updated details of different drug metabolism and mechanism of action in different diseases related to Systemic pharmacology		
C-State update and evidence based Knowledge related to Systemic pharmacology.		
D-Memorize the facts and principles of the other relevant basic and clinically supportive sciences of Systemic pharmacology (physiology and biochemistry).		
E. Mention the basic ethical and medico legal principles revenant to the Systemic pharmacology.		
F. Explain 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

ILOs	Methods of teaching/ learning	Methods of Evaluation
A-Design / present case , seminars in common problem related to Systemic pharmacology(pharmacology II).	-Lectures -workshops -Literatures And Seminars. -Different search engines & Data	*Written, and preparation of research propoals,comment on TDM reports and oral*
B-Apply the basic and clinically supportive sciences which are appropriate to the Systemic		

pharmacology related conditions / problem / topics.	base	*examinations*
C-Demonstrate an investigatory and analytic thinking "problem – solving "approaches to clinical situation related to Systemic pharmacology		
D-Conduct or share in research projects.		
E-Write scientific papers.		
F-Participate in the management of complex conditions related to Systemic pharmacology such as ; dealing with complex issues both systematically and creatively, and to assemble, assimilate and analyze critically a range of information including both scientific data and library-based material		
G-Plan for quality improvement in the field of medical education and professional practice in Systemic pharmacology.		
H-Create plans, systems, and other issues for improvement of performance in his practice.		
I-Present and defend his / her data in front of a panel of experts		
J-Formulate management plans and alternative decisions in different situations in the field of the Systemic pharmacology.		

C. Practical skills

ILOs	Methods of teaching/ learning	Methods of Evaluation
A-Perform the following basic lab skills essential to Systemic pharmacology including • Cardiovascular pharmacology. • Respiratory pharmacology. • Neuropsychopharmacology. • Immunopharmacology. • Inflammation. • Chemotherapy. • GIT and tropical diseases.	Practical Training Experiments Procedures Techniques,	Practical exam Experimental Case discussion Chick list Report logbook
B-Perform the advanced lab skills essential to systemic pharmacology including the following: • Cardiovascular pharmacology. • Respiratory pharmacology. • Neuropsychopharmacology. • Immunopharmacology. • Inflammation. • Chemotherapy. • GIT and tropical diseases.		
C-Use instruments and devices in systemic pharmacology		
D-Interpret the non invasive &invasive procedures and experiments in pharmacology		
E-Perform the non invasive& invasive procedures and experiments.		
F-Perform the basic experiments in related basic sciences to be utilized in the research work of experimental pharmacology.		

G-Use information technology to support decisions in common situations related to experimental pharmacology		
H- Develop and carry out diagnostic and teaching plans for all experimental pharmacology related conditions & skills.		
I-Counsel and educate • Patients and their family about drug administration indication, Contraindication , hypersensitivity, side effect, therapeutic clinical trial and drug resistance • Students, technicians and junior staff, about conditions related to Pharmacology; including handling of samples, devices, safety and maintenance of laboratory equipments.		
J-Use information technology to support decisions in common conditions related to experimental pharmacology		
K-Provide health care services aimed at preventing experimental pharmacology limitations and problems.		
L- Work with health care professionals, including those from other disciplines, to provide patient-focused care.		
M- Write and evaluate competently all forms of professional reports related to the experimental pharmacology i.e. (lab reports, experiments reports,)		

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 in the common problems (plan and conduct audit cycles)	-Observation and supervision Journal club	-Log book Portfolio.
B- Locate, appraises, and assimilates evidence from scientific studies related to health problems.		
C-Apply knowledge of study designs and statistical methods to the appraisal of studies		
D-Use information technology to manage information, access on-line medical information; and support their own education		
E-Lead the learning of students and other health care professionals.		

Interpersonal and Communication Skills

ILOs	Methods of teaching/ learning	Methods of Evaluation
F-Perform the following oral communications: With students and colleagues.	-Observation and supervision -Written & oral communication	-Log book Portfolio.
G-Work effectively with others as a member or leader of a health care team.		

Professionalism

ILOs	Methods of teaching/ Learning	Methods of Evaluation
H-Demonstrate sensitivity and responsiveness to others ’ culture, age, gender, and disabilities	Observation and supervision	1. Objective structured clinical examination 2. Patient survey

Systems-Based Practice

ILOs	Methods of teaching/ learning	Methods of Evaluation
I-Work effectively in different health care delivery settings and systems.	Observation and supervision	1. 360o global rating 1. Check list evaluation of live or recorded performance
J-Advocate for quality health care and assist in dealing with system complexities		1. 360o global rating 2. Patient survey
K-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		

Unit 3: Experimental Pharmacology

A-Knowledge and understanding

ILOs	Methods of teaching/ learning	*Methods of Evaluation*
A. Describe different conditions, circumstances and facts of techniques related to Clinical pharmacology e.g.: • TDM • Designing research proposals • Immunohistochemistry • Pharmacogenetics	-Lectures -workshops -Literatures And Seminars. -Different search engines & Data base	*Written, and oral examinations* MCQs
B-Mention the details of different hypothesis and theory of experiment based on pharmacological facts and Experimental pharmacology related.		
C-State update and evidence based Knowledge related to Experimental pharmacology		
D-Memorize the facts and principles of the other relevant basic and clinically supportive sciences related to Experimental pharmacology		
E-Mention the basic ethical and medico legal principles revenant to Experimental pharmacology.		
F-Explain the basics of quality assurance to ensure good professional skills in his field.		
G-Mention the ethical and scientific principles of medical research		
H-Explain the impact of common health problems in the field of Experimental pharmacology on the society		

B-Intellectual outcomes

ILOs	Methods of teaching/ learning	Methods of Evaluation
A-Design case presentation , seminars in common problem related to Experimental pharmacology.	-Lectures -workshops -Literatures - Seminars. -Different search engines & Data base Didactics Tutorial Report discussion	*Written, and oral examinations* Problem solving Reports .MCQ
B-Apply the basic and clinically supportive sciences which are appropriate to Experimental pharmacology related conditions / problem / topics.		
C-Demonstrate an investigatory and analytic thinking "problem – solving "approaches to clinical situation related to Experimental pharmacology		
D-Conduct or share in research projects.		
E-Write scientific papers.		
F-Participate in the management of risky conditions related to Experimental pharmacology including dealing with complex issues both systematically and creatively, and to assemble, assimilate and analyze critically a range of information including both scientific data and library-based material.		
G-Plan for quality improvement in the field of medical education and professional practice in Experimental pharmacology		
H-Create and innovate plans, systems, and other issues for improvement of performance in his practice.		
I-Present and defend his / her data in front of a panel of experts		
J-Formulate management plans and alternative decisions in different situations in the field of Experimental pharmacology		

C-Practical skills

ILOs	Methods of teaching/ learning	Methods of Evaluation
A. Perform the following basic lab skills essential to Experimental pharmacology including experimentation safely and effectively in lab.	Practical Training Experiments Procedures Techniques,	Practical exam Experimental Case discussion Chick list Report logbook
B. Perform the advanced lab skills essential to Experimental pharmacology including the following: C. TDM D. Designing research proposals E. Immunohistochemistry F. Pharmacogenetics		
C-Use instruments and devices in Experimental pharmacology		
D-Interpret the non invasive &invasive procedures and experiments in pharmacology		
E-Perform the non invasive& invasive procedures and experiments.		
F-Perform the basic experiments in related basic sciences to be utilized in the research work of experimental pharmacology.		
G-Use information technology to support decisions in common situations related to experimental pharmacology		
H- Develop and carry out diagnostic and teaching plans for all experimental pharmacology related conditions & skills.		

I-Counsel and educate • Patients and their family about drug administration indication, Contraindication , hypersensitivity, side effect, therapeutic clinical trial and drug resistance • Students, technicians and junior staff, about conditions related to Pharmacology; including handling of samples, devices, safety and maintenance of laboratory equipments.		
J-Use information technology to support decisions in common conditions related to experimental pharmacology		
K-Provide health care services aimed at preventing experimental pharmacology limitations and problems.		
L- Work with health care professionals, including those from other disciplines, to provide patient-focused care.		
M- Write and evaluate competently all forms of professional reports related to the experimental pharmacology i.e. (lab reports, experiments reports,)		

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 in the common problems (plan and conduct audit cycles)	-Observation and supervision -Written & oral communication	-Log book Portfolio.
B. Locate, appraises, and assimilates evidence from scientific studies related to health problems.		
C. Apply knowledge of study designs and statistical methods to the appraisal of clinical studies		
D. Use information technology to manage information, access on-line medical information; and support their own education		
E. Lead the learning of students and other health care professionals.		

Interpersonal and Communication Skills

ILOs	Methods of teaching/ learning	Methods of Evaluation
F. Create and sustain a therapeutic and ethically sound relationship with patients	-Observation and supervision -Written & oral communication	-Log book Portfolio.
G. Perform the following oral communications: With students, colleagues, other specialties		
H. Fill the following reports: Experimental reports Procedure reports Drug screening and assay.		
I. Work effectively with others as a member or leader of a health care team.		

Professionalism

ILOs	Methods of teaching/ Learning	Methods of Evaluation
J-Demonstrate respect, compassion, and integrity; a responsiveness to the needs of patients and society that supersedes self-interest.	-Observation and supervision -Written & oral communication	-Log book Portfolio.
K-Demonstrate a commitment to ethical principles pertaining to 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

ILOs	Methods of teaching/ learning	Methods of Evaluation
M-Work effectively in different health care delivery settings and systems.	-Observation and supervision -Written & oral communication	-Log book Portfolio. Record review
N-Practice cost-effective health care and resource allocation that does not compromise quality of care		
O-Advocate for quality patient care and assist patients in dealing with system complexities		
P-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		

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

Time Schedule: Second part

Unit 1 General Pharmacology				
Topic	**Covered ILOs**			
	Knowledge	**Intellectual**	**Practical skill**	**General Skills**
Pharmacokinetics	**A- G**	**A-J**	**-**	**A-H**
Clinical pharmacokinetics	**A-G**	**A-J**	**-**	**A-K**
Pharmacodynamics	**A-G**	**A-J**	**-**	**A-H**
Pharmacogenetics	**A-G**	**A-J**	**-**	**A-K**
Pharmacogenomics	**A-G**	**A-J**	**-**	**A-H**
Unit 2 Advanced Pharmacology				
Topic	**Covered ILOs**			
	Knowledge	**Intellectual**	**Practical skill**	**General Skills**
Cardiovascular pharmacology	**A-G**	**A-J**	**-**	**A-K**
Respiratory pharmacology	**A-G**	**A-J**	**-**	**A-K**
neuropsychopharmacology	**A-G**	**A-J**	**-**	**A-K**
immunopharmacology	**A-G**	**A-J**	**-**	**A-K**
Inflammation	**A-G**	**A-J**	**-**	**A-K**
chemotherapy	**A-G**	**A-J**	**-**	**A-K**
GIT and tropical diseases	**A-G**	**A-J**	**-**	**A-K**
Unit 3 Experimental pharmacology				
Topic	**Covered ILOs**			
	Knowledge	**Intellectual**	**Practical skill**	**General Skills**
• TDM	A-C	A	A-F	A-E
Designing research	A-H	A-J	A-M	A-M

proposals				
Immunohistochemistry	A-G A-G	A-C	A-F	A-E,G,L,P
Pharmacogenomics	A-G A-G	A-C	E,F E,F	A-E,GL,P A-E,GL,P
Immunblotting	A-G A-G	A-C	E,F	A-E,GL,P
ELISA	A-G A-G	A-C A-C	E,F E,F	A-C A-E,GL,P

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: At the end of the second part

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, 14th Edition. By Bertram Katzung, Anthony Trevor, Susan Masters. Publisher: McGraw-Hill 2018.
- Godman Gilmans. The pharmacological therapeutics. 13th Ed, 2016

iv. Periodicals, Web sites, … etc

➢ **Periodicals,**

- British Journal of pharmacology
- British Journal of clinical Pharmacology
- Journal of pharmacology and Experimental Therapeutics
- Lancet
- Pharmacological review

➢ **Web sites:** http://mic.sgmjournals.org/

v. others : None

9. Signatures

Course Coordinator: Dr. Rasha Bakheet	**Head of the Department: Prof. Dr. Hanan Farghaly**
Date: 12/2021	**Date:12/2021**

ANNEX 2
Program Academic Reference Standards (ARS)

1- Graduate attributes for medical doctorate in pharmacology

***The Graduate (after residence training and medical doctorate years of study) must*:**

1- Demonstrate competency and mastery of basics, methods and tools of scientific research and medical audit in the chosen field of Pharmacology.

2- Have continuous ability to add knowledge to the Pharmacology through research and publication.

3- Appraise and utilise relevant scientific knowledge to continuously update and improve practical skills.

4- Acquire excellent level of medical knowledge in the basic biomedical, behavioural and related clinical sciences, medical ethics and medical jurisprudence and apply such knowledge in practical skills and scientific research.

5- Function as a leader of a team to provide appropriate, effective and compassionate reaction when dealing with problems related to Pharmacology.

6- Identify and create solutions for health problems related to his speciality.

7- Acquire an in depth understanding of common areas of speciality, from basic practice and related clinical care to application, and possession of required skills to manage independently all problems in these areas.

8- Demonstrate leadership competencies including interpersonal and communication skills that ensure effective information exchange with other health professions, the scientific community and the public.

9- Function as teacher in relation to colleagues, medical students and other health professions.

10- Master decision making capabilities in different situations related to his field of practice.

11- Show leadership responsiveness to the larger context of the related health care systems, including the organisation, partnership with health care providers and managers, and resource allocations.

12- Demonstrate in depth awareness of public health and related health policy issues including independent ability to improve health care, and identify and carryout system-based improvement of care.

13- Show model attitudes and professionalism.

14- Demonstrate commitment for lifelong learning and maintenance of competence and ability for continuous medical education and learning in subsequent stages and in the Pharmacology or one of its subspecialties.

15- Use recent technologies to improve his practice in the speciality field.

16- Share in updating and improving practical practice in the Pharmacology field.

2- Competency based Standards for medical doctorate in Pharmacology

2.1- Knowledge and understanding

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

2-1-A- Established, updated and evidence-based theories, basics and developments of Pharmacology and relevant sciences.

2-1-B- Basic, methods and ethics of medical research.

2-1-C- Ethical and medicologal principles of medical practice related to Pharmacology field.

2-1-D- Principles and measurements of quality in the Pharmacology field.

2-1-E- Principles and efforts for maintaining and improvements of public health.

2- Intellectual skills

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

2-2-A- Application of basic and other relevant science to solve pharmacology related problems.

2-2-B- Problem solving based on available data.

2-2-C- Involvement in research studies related to the pharmacology.

2-2-D- Writing scientific papers.

2-2-E- Risk evaluation in the related clinical practice.

2-2-F- Planning for performance improvement in the pharmacology field.

2-2-G- Creation and innovation in the Pharmacology field.

2-2-H- Evidence – based discussion.

2-2-I- Decision making in different situations related to the Pharmacology fields.

2.3- Practical/Clinical skills

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

- ***Competency-based outcomes for Patient Care:-***

2-3-A- Provide extensive level of practical and or laboratory services that can help patient care ,solving health problems and better understanding of the normal structure and function extensive level means in depth understanding from basic science to evidence – based clinical application and possession of skills to manage independently all problems in his field of practice.

2-3-B- Master practical / laboratory skills relevant to that Pharmacology.

2-3-C- Write and evaluate 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- Master practice-based learning and improvement skills that involves investigation and evaluation and improvements of their own practice, appraisal and assimilation of scientific evidence and risk management.

2-4-B- Use competently all information sources and technology to improve his practice.

2-4-C- Master skills of teaching and evaluating others.

- ***Competency-based objectives for Interpersonal and Communication Skills***

2-4-D- Master interpersonal and communication skills that result in effective information exchange and teaming with patients, their families, technicians and other health professionals.

- ***Competency-based objectives for Professionalism***

2-4-E- Master Professionalism behavior, 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 the ability to effectively use system resources to provide relevant services and care that is of optimal value.

2-4-G- Participate in improvement of the education system.

2-4-H- Demonstrate skills of leading scientific meetings including time management.

2-4-O- 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 MD 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 MD students 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 MD 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 MD doctor's performance on checklists and provide feedback for history taking, physical examination, and communication skills. Physicians may also rate the MD doctor's performance.
- Objective Structured Clinical Examination (OSCE) – A series of stations with standardized tasks for the MD doctors to perform. Standardized patients and other assessment methods often are combined in an OSCE. An observer or the standardized patient may evaluate the MD doctors.
- Procedure or Case Logs – MD 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 MD 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 – MD doctors, faculty, nurses, clerks, and other clinical staff evaluate MD doctors from different perspectives using similar rating forms.
- Portfolios – A portfolio is a set of project reports that are prepared by the MD doctors to document projects completed during the MD 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 – MD 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 MD 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 6, Program Correlations:

مصفوفة توافق المعايير القومية القياسية العامة لبرامج الدكتوراة مع المعايير الأكاديمية المعتمدة من كلية الطب □ جامعة أسيوط لدرجة الدكتوراة فى الفارماكولوجى

I-General Academic reference standards (GARS) for postgraduates versus Program ARS *for MD degree in* pharmacology

NAQAAE General ARS for Postgraduate Programs	Faculty ARS
1-إتقان أساسيات و منهجيات البحث العلمي	1- Demonstrate competency and mastery of basics, methods and tools of scientific research and medical audit in Pharmacology.
2-العمل المستمر علي الإضافة للمعارف في مجال التخصص	2- Have continuous ability to add knowledge new developments to the Pharmacology through research and publication.
3-تطبيق المنهج التحليلي والناقد للمعارف في مجال التخصص و المجالات ذات العلاقة	3- Appraise and utilise scientific knowledge to continuously update and improve practical skills
4-دمج المعارف المتخصصة مع المعارف ذات العلاقة مستنبطا و مطورا للعلاقات البينية بينها	4- Acquire excellent level of medical knowledge in the basic biomedical, related clinical, behavioural and clinical sciences, medical ethics and medical jurisprudence and apply such knowledge in practical skills and scientific research.
5-إظهار وعيا عميقا بالمشاكل الجارية و	5- Function as a leader of a team to

النظريات الحديثة في مجال التخصص	provide appropriate, effective and compassionate reaction when dealing with problems related to Pharmacology. 7- Acquire an in depth understanding of common areas of Pharmacology, from basic practice and related clinical care to application, and possession of skills to manage independently all problems in these areas.
6-تحديد المشكلات المهنية و إيجاد حلولا مبتكرة لحلها	6- Identify and create solutions for health problems related to his Pharmacology.
7-إتقان نطاقا واسعا من المهارات المهنية في مجال التخصص	5- Function as a leader of a team to provide appropriate, effective and compassionate reaction when dealing with problems related to Pharmacology. 7- Acquire an in depth understanding of common areas of speciality, from basic practice and related clinical care to application, and possession of skills to manage independently all problems in these areas.

1- Graduate attributes <u>(Continuous)</u>

NAQAAE General ARS for Postgraduate Programs	Faculty ARS
8- التوجه نحو تطوير طرق و أدوات و أساليب جديدة للمزاولة المهنية	16- Share in updating and improving practical practice in the pharmacology field. 9- Function as teacher in relation to colleagues, medical students and other health professions.
9-استخدام الوسائل التكنولوجية المناسبة بما يخدم ممارسته المهنية	15- Use recent technologies to improve his practice in the pharmacology field.
10-التواصل بفاعلية و قيادة فريق عمل في سياقات مهنية مختلفة	8- Demonstrate leadership competencies including interpersonal and communication skills that ensure effective information exchange with other health professions, the scientific community and the public. 5- Function as a leader of a team to provide appropriate, effective and compassionate reaction when dealing with problems related to pharmacology
11-اتخاذ القرار في ظل المعلومات المتاحة	10- Master decision making capabilities in different situations related to pharmacology practice.
12-توظيف الموارد المتاحة بكفاءة و تنميتها	11- Show leadership responsiveness to

والعمل على إيجاد موارد جديدة	the larger context of the related health care system, including the organisation, partnership with health care providers and managers, and resource allocations.
13-الوعي بدوره في تنمية المجتمع و الحفاظ على البيئة	12- Demonstrate in depth awareness of public health and related health policy issues including independent ability to improve health care, and identify and carryout system-based improvement of care.
14-التصرف بما يعكس الالتزام بالنزاهة و المصداقية و قواعد المهنة	13- Show model attitudes and professionalism.
15-الالتزام بالتنمية الذاتية المستمرة و نقل علمه و خبراته للآخرين	14- Demonstrate commitment for lifelong learning and maintenance of competence and ability for continuous medical education and learning in subsequent stages in the pharmacology. 15- Use recent technologies to improve his practice in the pharmacology field.

2- Academic standards

NAQAAE General ARS for Postgraduate Programs	Faculty ARS
2-1-أ- النظريات و الأساسيات والحديث من المعارف في مجال التخصص والمجالات ذات العلاقة	2.1. A- Established updated and evidence-based theories, basics and developments of pharmacology and relevant sciences.
2-1-ب - أساسيات و منهجيات و أخلاقيات البحث العلمي و أدواته المختلفة	2.1. B- Basic, methods and ethics of medical research.
2-1-ج- المبادئ الأخلاقية و القانونية للممارسة المهنية في مجال التخصص	2.1. C- Ethical and medicologal principles of medical practice related to pharmacology field.
2-1-د مبادئ و أساسيات الجودة في الممارسة المهنية في مجال التخصص	2.1. D- Principles and measurements of quality in the pharmacology field.
2-1-هـ - المعارف المتعلقة بآثار ممارسته المهنية على البيئة وطرق تنمية البيئة وصيانتها	2.1. E- Principles and efforts for maintaining and improvements of public health.
2-2-أ -تحليل و تقييم المعلومات في مجال التخصص و القياس عليها و الاستنباط منها	2.2. A- Application of basic and other relevant science to solve pharmacology related problems.
2-2-ب -حل المشاكل المتخصصة استنادا علي المعطيات المتاحة	2.2. B- Problem solving based on available data.
2-2-ج -إجراء دراسات بحثية تضيف إلى المعارف	2.2. C- Involvement in research studies related to the pharmacology
2-2-د- صياغة أوراق علمية	2.2. D- Writing scientific papers.
2-2—هـ تقييم المخاطر في الممارسات المهنية	2.2. E- Risk evaluation in the related pharmacology practice.
2-2-و -التخطيط لتطوير الأداء في مجال التخصص	2.2. F- Planning for performance improvement

	in the pharmacology field.
2-2-ز- الابتكار /الإبداع	2-2-G- Creation and innovation in the pharmacology field.
2-2-ح- الحوار والنقاش المبني علي البراهين والأدلة	2.2. H- Evidence – based Discussion.
2-2-ط -اتخاذ القرارات المهنية في سياقات مهنية مختلفة	2.2. I- Decision making in different situations related to the pharmacology field.
2-3-أ -إتقان المهارات المهنية الأساسية و الحديثة في مجال التخصص	2.3. A- Provide extensive level of practical and or laboratory services that can help solving health problems and better understanding of the normal structure and function extensive level means in depth understanding from basic science to evidence – based clinical application and possession of skills to manage independently all problems in pharmacology practice. 2.3. B- Master practical / laboratory skills relevant to pharmacology.
2-3-ب- كتابة و تقييم التقارير المهنية.	2.3. C- Write and evaluate reports for situations related to the pharmacology.

2- Academic standards (Continues)

NAQAAE General ARS for Postgraduate Programs	Faculty ARS
2-3-ج -تقييم و تطوير الطرق و الأدوات القائمة في مجال التخصص	2.4. A-Master practice-based learning and improvement skills that involves investigation and evaluation and improvements of histology practice, appraisal and assimilation of scientific evidence and risk management.
2-3-د – استخدام الوسائل التكنولوجية بما يخدم الممارسة المهنية	2.4. B- Use competently all information sources and technology to improve pharmacology practice.
2-3-هـ -التخطيط لتطوير الممارسة المهنية وتنمية أداء الآخرين	2.4. A-Master practice-based learning and improvement skills that involves investigation and evaluation and improvements of histology practice, appraisal and assimilation of scientific evidence and risk management. 2.4. G- Participate in improvement of the education system.

2- Academic standards (Continues)

NAQAAE General ARS for Postgraduate Programs	Faculty ARS
2-4-أ التواصل الفعال بأنواعه المختلفة	2.4. D- Master interpersonal and communication skills that result in effective information exchange and teaming with health professionals.
2-4-ب - استخدام تكنولوجيا المعلومات بما يخدم تطوير الممارسة المهنية	2.4. B- Use competently all information sources and technology to improve pharmacology practice.
2-4-ج - تعليم الآخرين وتقييم أداءهم	2.4. C- Master skills of teaching and evaluating others. 2.4.G- Participate in improvement of the education system.
2-4-د - التقييم الذاتي والتعلم المستمر	2.4. E- Master professionalism behavior, as manifested through a commitment to carrying out professional responsibilities, adherence to ethical principles. 2.4.0- Demonstrate skills of self and continuous learning.
2-4-هـ - استخدام المصادر المختلفة للحصول على المعلومات و المعارف	2.4. C- Master skills of teaching and evaluating others.
2-4-و العمل فرق وقيادة فريق في العمل	2.4. F- Demonstrate the ability to effectively use system resources to provide relevant services and care that is of optimal value.
2-4-ز - إدارة اللقاءات العلمية والقدرة علي إدارة الوقت	2.4.H- Demonstrate skills of leading scientific meetings including time management

Comparison between ARS and ILOS for MD degree in Pharmacology

(ARS)	(ILOs)
2-1- Knowledge and understanding	***2-1- Knowledge and understanding***
2-1-A- Established, updated and evidence-based theories, basics and developments of pharmacology and relevant sciences.	**2-1-A-** Demonstrate in-depth knowledge and understanding of theories, basics and updated biomedical, clinical epidemiological and socio behavioral science relevant to Pharmacology as well as the evidence – based application of this knowledge to pharmacology practice.
2-1-B Basic, methods and ethics of medical research. .	**2-1-B-** Explain basics, methodology, tools and ethics of scientific medical, clinical research.
2-1-C- Ethical and medicologal principles of medical practice related to pharmacology field.	**2-1-C-** Mention ethical, medico logical principles and bylaws relevant to pharmacology practice.
2-1-D- Principles and measurements of quality in pharmacology field.	**2-1-D-** Mention principles and measurements of quality assurance and quality improvement in medical education and in pharmacology practice.
2-1-E-Principles and efforts for maintaining and improvements of public health.	**2-1-E-** Mention public health and health policy issues relevant to histology and principles and methods of system – based improvement of pharmacology practice.

continuous **(ARS)**	**Continuous** **(ILOs)**
***2-2- Intellectual skills*:**	***2-2- Intellectual skills:***
2-2-A-Application of basic and other relevant science to solve pharmacology related problems.	**2-2-A-** Apply the basic and clinically supportive sciences which are appropriate to the pharmacology related conditions / problem / topics.
2-2-B-Problem solving based on available data.	**2-2-B-** Demonstrate an investigatory and analytic thinking "problem – solving "approaches to relevant situations related to pharmacology.
2-2-C- Involvement in research studies related to the pharmacology	**2-2-C-** Plan research projects.
2-2-D Writing scientific papers.	**2-2-D-** Write scientific paper.
2-2-E-Risk evaluation in the related practice.	**2-2-E-** Participate in laboratory risk management activities as a part of clinical governance.
2-2-F-Planning for performance improvement in the pharmacology field.	**2-2-F-** Plan for quality improvement in the field of medical education and practice in pharmacology.
2-2-G-Creation and innovation in the pharmacology field.	**2-2-G-** Create / innovate plans, systems, and other issues for improvement of performance in pharmacology practice.
2-2-H-Evidence – based discussion.	**2-2-H-** Present and defend his / her data in front of a panel of experts.
2-2-I-Decision making in different situations related to the pharmacology field.	**2-2-I-** Formulate management plans and alternative decisions in different situations in the field of the pharmacology

continuous (ARS)	**continuous (ILOs)**
2-3- Practical skills: **2-3-A-** provide extensive level of practical and or laboratory services that can help solving health problems and better understanding of the normal structure and function extensive level means in depth understanding from basic science to evidence – based clinical application and possession of skills to manage independently all problems in histology field of practice. **2-3-B-** Master practical/laboratory skills relevant to pharmacology	***2/3/1/Practical skills (Patient care :)*** **2-3-1-A-** Master practical skills relevant to pharmacology for all common techniques and /or experiments including. **2-3-1-B-** Master practical skills with non-routine, laboratory skills and techniques and under increasingly difficult circumstances, while demonstrating, appropriate and effective competency including. **2-3-1-C-** Master proficiency in performing available complex laboratory techniques including immunoassaying. **2-3-1-D-** Gather essential and accurate information about practical/laboratory skills related of the pharmacology including usage of different stains. **2-3-1-F-** Develop and carry out diagnostic and teaching plans for all pharmacology skills including slide projector, data show and monitors. **2-3-1-G-** Use information technology to support practical decisions and students education in all pharmacology practice including power point presentations. **2-3-1-I-** Lead other professionals, including those from other disciplines, to provide practical/laboratory-focused care in pharmacology related conditions including.
2-3-C- Write and evaluate reports for situations related to the pharmacology	**2-3-1-J-** Write competently all forms of professional reports related to the pharmacology (lab reports, experiments reports,) including reports evaluating these charts and sheets.

continuous (ARS)	continuous (ILOs)
2-4- General skills	***2/3/2 General skills***
2-4-A- Master Practice-Based Learning and Improvement skills that involves investigation and evaluation and improvements of their own practice, appraisal and assimilation of scientific evidence and risk management.	**2-3-2-A-** Demonstrate the competency of continuous evaluation of different types of pharmacology practice including sectioning and processing of specimens. **2-3-2-B-** Appraise scientific evidence. **2-3-2-C-** Continuously improve his practice based on constant self-evaluation and life-long learning. **2-3-2-D-** Participate in medical audits and research projects. **2-3-2-E-** Practice skills of evidence-based Medicine (EBM). **2-3-2-G-** Design logbooks. **2-3-2-H-** Design guidelines and standard protocols for different techniques and procedures.
2-4-B- Use competently all information sources and technology to improve pharmacology practice.	**2-3-2-I-** Apply knowledge of study designs and statistical methods to the appraisal of pharmacology related studies. **2-3-2-J-** Use information technology to manage information, access on-line medical information; for the important topics.
2-4-C- Master skills of teaching and evaluating others.	**2-3-2-F-** Educate and evaluate students.
2-4-D- Master interpersonal and communication Skills that result in effective information exchange	**2-3-2-K-** Master interpersonal and communication skills that result in the effective exchange of

and teaming with other health professionals.	information and collaboration with students including:- share in teaching small groups of students. • Present a seminar. • Write a paper. • Teamwork skills. **2-3-2-L-** Create and sustain an ethically sound relationships with students. **2-3-2-M-** Elicit and provide information using effective nonverbal, explanatory, questioning, and writing skills. **2-3-2-N-** Work effectively with others as a member or leader of a health care team or other professional group.
2-4-E- Master Professionalism behavior, as manifested through a commitment to carrying out professional responsibilities, adherence to ethical principles, and sensitivity to a diverse student population.	**2-3-2-O-** Demonstrate respect, compassion, and integrity; a responsiveness to the needs of students and society. **2-3-2-P-** Demonstrate a commitment to ethical principles including provision or withholding of student information. **2-3-2-Q-** Demonstrate sensitivity and responsiveness to Others' culture, gender, and disabilities.
2-4-F- Demonstrate the ability to effectively use system resources to provide relevant services and care that is of optimal value. **2-4-G-** Participate in improvement of the education system.	**2-3-2-R-** Work effectively in academic and health care delivery settings and systems related to pharmacology including good administer and time management. **2-3-2-S-** Practice cost-effective services provision and resource allocation that does not compromise

	quality. **2-3-2-T-** Advocate for quality student care. **2-3-2-U-** Design, monitor and evaluate specification of under and post graduate courses and programs.
2-4-H- Demonstrate skills of leading scientific meetings including time management	**2-3-2-V-** Act as a chair man for scientific meetings including time management **2-3-2-R-** Work effectively in academic and health care delivery settings and systems related to pharmacology including good administrative and time management.
0- Demonstrate skills of self and continuous learning.	From A to H**.**

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
Course 1 : Medical statistics and computer		✓			
Ccourse 2 : Research Methods		✓			
Course 3: Medicolegal Aspects and Ethics in Medical Practice and Scientific Research					
Course 4: Insrumental analysis					
Course 5: Moleclar biology					
Course 6: Biotechnology					
Course 3 : Advanced Pharmacology	✓	✓	✓	✓	✓

Intellectual

Course	Program Covered ILOs								
	2/2/A	2/2/B	2/2/C	2/2/D	2/2/E	2/2/F	2/2/G	2/2/H	2/2/I
Course 1: Medical Statistics and computer			✓	✓					
Course 2: Research methods			✓	✓					
Course 3: Medicolegal Aspects and Ethics in Medical Practice and Scientific Research		✓					✓		
Course 4: Insrumental analysis					✓				
Course 5: Moleclar biology			✓				✓		
Course 6: Biotechnology		✓							
course 7 : 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	2/3/1/ I	2/3/1/ J
Course 1: Medical Statistics and computer		✓		✓			✓			✓
Course 2: Research methods		✓				✓			✓	
Course 3: Medicolegal Aspects and Ethics in Medical Practice and Scientific Research			✓	✓					✓	
Course 4: Insrumental analysis			✓				✓		✓	
Course 5: Moleclar biology		✓	✓			✓				
Course 6: Biotechnology				✓		✓		✓		✓
course 3 : 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	2/3/2/I
Course 1: Medical Statistics and computer		✓							
Course 2: Research methods									✓
Course 3: Medicolegal Aspects and Ethics in Medical Practice and Scientific Research			✓						✓
Course 4: Insrumental analysis		✓				✓		✓	
Course 5: Moleclar biology				✓					
Course 6: Biotechnology		✓		✓				✓	
course 3 : Advanced pharmacology	✓	✓	✓	✓	✓	✓	✓	✓	✓

General Skills

Course	Program Covered ILOs						
	2/3/2/J	2/3/2/K	2/3/2/L	2/3/2/M	2/3/2/N	2/3/2/O	2/3/2/P
Course 1: Medical Statistics and computer			✓				
Course 2: Research methods		✓				✓	
Course 3: Medicolegal Aspects and Ethics in Medical Practice and Scientific Research				✓			
Course 4: Insrumental analysis		✓		✓			
Course 5: Moleclar biology	✓				✓		✓
Course 6: Biotechnology			✓		✓		
Course 3 : Advanced pharmacology	✓	✓	✓	✓	✓	✓	✓

Course	Program Covered ILOs					
	2/3/2 /Q	2/3/2 /R	2/3/2 /S	2/3/2 /T	2/3/2 /U	2/3/2 /V
Course 1: Medical Statistics and computer			✓			
Course 2: Research methods		✓				✓
Course 3: Medicolegal Aspects and Ethics in Medical Practice and Scientific Research				✓		
Course 4: Insrumental analysis		✓		✓		
Course 5: Moleclar biology	✓				✓	
Course 6: Biotechnology			✓		✓	
course 3 : Advanced Pharmacology	✓	✓	✓	✓	✓	✓

Annex 7, Additional information:

Department information:

Our Mission:

The mission of the Department of **Medical Pharmacology** is to conduct the best possible research and provide the most rigorous and inspiring training in the areas of **Medical Pharmacology** (pharmacokinetics, pharmacodynamics, pharmacogenetics, drug - drug interactions and drug induced diseases) **and related fields**. Through such activities, our goal is to improve human health. We hope to present an overview of our research and training activities and to inspire like-minded individuals to join us in our quest.

Research

The traditional focus of the Department of **Medical Pharmacology** is 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.

Teaching Mission:

The teaching mission of the Department is to provide the best possible training in the areas of **Medical Pharmacology** and related fields.

We offer a large number of formal courses as well as practical training and mentoring in the lab and clinic. We are committed to undergraduate and postgraduate training.

Undergraduate Studies

The Department of **Medical Pharmacology** offers many opportunities for undergraduate students to learn about our discipline. We offer many courses that specifically cater to undergraduates ranging from freshman seminars through to advanced classes for seniors. Undergraduates also are encouraged to obtain research experience in the labs of

department faculty. Students interested in doing this should contact individuals whose work falls within their specific area of interest.

Graduate Studies

Courses typically taken are at the advanced graduate level in **Medical Pharmacology** besides cell and molecular biology. All students are required to obtain some teaching experience, usually by serving as teaching assistant. The normal time for completion of the MSc. is about 2 to3 years, and for MD (Ph.D) is about 4 years.

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/عفاف عبدالله عبدالوارث أحمد
- أستاذ متفرغ/رأفت عبدالبديع السيد عبدالعال
- أستاذ متفرغ/أحمد عثمان عبدالظاهر محمد

أستاذ متفرغ/عبدالعظيم عبدالمعز محمد عاصى

- أستاذ/إيهاب سعيد إبراهيم الدسوقى
- أستاذ/سعيدة عبدالرجال على على (معار)
- أستاذ/مصطفى محمود حمدي عيد اللاه
- أستاذ /مهران شاكر عبدالرحمن محمد
- أستاذ /باسل عبدالنعيم عبدالوهاب محمد(معار)
- أستاذ /عادل جلال أحمد الشيمى(معار)

أستاذ /حنان سيد محمد فرغلى

- استاذ مساعد /رشا بخيت عبداللطيف
- استاذ مساعد/ محمد مصطفى محمد
- استاذ مساعد/ محمد سالم هريدى

- 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/هويدا 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
- مدرس /لبنى على عبدالظاهر عبدالرحمن
- مدرس /أحمد محمد عبد الدايم أحمد
- مدرس /ألاء طلعت عبدالله عبدالحافظ
- مدرس /إيهاب أحمد محمد العواد
- مدرس /دعاء حمدى عبدالحميد عبدالحاف
- مدرس مساعد/مروة جمال عبدالله جامع
- مدرس مساعد /محمد سيد مله سيد
- مدرس مساعد/أندرو زكريا زكا

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 Specifications)