Academic Reference Standards (ARS)
for
PhD degree in Pharmaceutical Sciences (Pharmacology and Toxicology)

Name of the Dept. pharmacology and Toxicology

ARS

Academic Year: 2021/2022

رئيس القسم
أ.د/ منار احمد نادر

signature

PhD in Pharmaceutical Sciences (Pharmacology and Toxicology)

Academic Reference Standards (ARS)

(Department Council Approval on May 2022

***Faculty Council Approval on* May 2022**

I. Attributes of the graduate:

The graduates of the PhD Degree of Pharmaceutical Sciences (pharmacology) should be capable of:

- Mastering of advanced knowledge, professional research skills, attitudes and values in the field of pharmacology and pathophysiology and integrating with the relevant subjects in his/her professional practice.
- Providing the ability to critically analyze the impact and outcomes of research results.
- Training in ethical and legal aspects of scientific research.
- Employing the available resources to achieve and preserve the maximum benefit.
- Exhibiting awareness of his/her role in the community development and preservation of environment in response to regional global changes.
- Reflecting commitment to integrity, credibility and rules of the pharmacy profession.
- Developing continuous self academic and professional learning.
- Applying the basics and methodologies of scientific research and manipulating its various tools in the field of Pharmacology.
- Recognizing the current issues in drug discovery and/their different actions.
- Adopting the scientific thinking approaches in subjects relevant to drug uses in variable organs diseases.
- Identifying and solving problems in the field of pharmacotherapy and pharmacogenomics.
- Mastering adequate range of specialized professional skills and using appropriate technology to improve his/her professional practice.
- Communicating effectively and having ability to participate and lead team works.
- Taking appropriate professional and scientific decisions in light of the available

information.

II. General Standards

1. Knowledge and Understanding:

Upon successful completion of the Program, graduates should be able to:

1.1 Identify the principles and fundamentals of pharmacology and other related fields.

1.2 Recognize the recent and advanced scientific evaluations in the field of drug discovery and pathophysiology.

1.3 Detect all basic used in the field of pharmacotherapy and pharmacogenomics.

1.4 Distinguish the value of ethics and legal issues of research and professional practice in pharmacology.

1.5 Identify principles and fundamentals of professional practice in the field of drug discovery and their mechanisms in different organs diseases.

1.6 Illustrate the mutual interaction between the pharmaceutical professional practice and the surrounding environment.

2. Intellectual Skills

Upon successful completion of the Program, graduates should be qualified to:

2.1 Analyze and evaluate information in the field of pharmacology.

2.2 Deduce solutions for specialized problems in absence of some information.

2.3 Integrate information to solve professional problems.

2.4 Develop methodological scientific studies on certain research problems.

2.5 Assess risk assessment of professional practice pharmacology.

2.6 Plan for development in pharmacology.

2.7 Generate professional decision in response to various professional contexts.

3. Professional and Practical Skills

Upon completion of the program, graduates should be able to

3.1 Master basic and professional skills in pharmacology and related fields.

3.2 Assess methods and techniques used in drug discovery and evaluation.

3.3 Write and evaluate professional research reports in pharmacology.

4. General and transferable skills:

Upon completion of the program, graduates should be able to:

4.1 Communicate effectively by various methods

4.2 Utilize effectively information technology in professional practice development.

4.3 Perform self assessment, continuous learning and identifying personal educational needs.

4.4 Use different resources to acquire knowledge and information.

4.5 Anticipate needs and risks in the research fields.

4.6 Work in a team and lead others in various professional contexts.

4.7 Manage time effectively.

4.8 Interpret and evaluate data available from scientific research.

4.9 Show awareness of ethics and legal issues of research and professional practice in pharmacology.

Dept. of Pharmacology and Toxicology	Course Specification	Pharmaceutical Sciences PhD

Pharmaceutical Sciences PhD (Pharmacology)

Course Specification

Academic year: 2021/2022

البرنامج دكتوراه العلوم الصيدلية	توصيف مقرر المناعة الدوائية Immunopharmacology
رئيس القسم أ د. منار أحمد نادر	منسق المقرر أ.د. ناريمان محمد جميل

General

University	Mansoura
Faculty	Pharmacy
Department offering the course	Department of Pharmacology and Toxicology
Department supervising the course	Department of Pharmacology and Toxicology
Program on which the course is given	Pharmaceutical Sciences PhD Program
Academic Level	Postgraduate
Academic year	2021/2022 - First semester
Date of course specification approval	May 2022

A.Basic Information : Course data :

Course Title	Immunopharmacology
Course Code	PHP-301
Teaching Hours: Lecture	2 C.H./week
Total Credit Hours	2

B. Professional Information

1- Overall Aims of Course:

Upon completion of this course, the PhD students should

1.1 Have good knowledge of the immune system and types/mechanisms of immunity
1.2 Have good knowledge of the clinical features of common autoimmune diseases.
1.3 Have detailed explanation of the immunostimulants and the immunosuppressants.
1.4 Hypersensitivity reactions and transplantation are also highlighted
1.5 Have good knowledge of immunotherapeutic drugs used to treat inflammation and disorders of the immune system including autoimmune diseases, asthma, allergy, transplant rejection and cancer.

2- Intended Learning Outcomes (ILOs)

2.1. *Knowledge and Understanding*

After completion of the course, graduates will be able to

a1	Explain the clinical presentations of some autoimmune diseases
a2	Demonstrate and illustrate different mechanisms of immune deficiency
a3	Define and explain the mechanisms of the immune system
a4	Predict the relationship between drugs and the immune system.

2.2. Intellectual Skills

After completion of the course, graduates will be able to

b1	Analyze and interpret some autoimmune clinical disorders
b2	Handle different types of immune deficiency using different therapeutic approaches
b3	Distinguish between different types of hypersensitivity reactions

2.3. Professional and Practical Skills

After completion of the course, graduates will be able to

c1	Define and explain signs and symptoms of some autoimmune diseases, advice patients and physician of the proper regimens in them.

2.4. General and Transferable Skills

After completion of the course, graduates will be able to

d1	Review and analyze relevant literatures.
d2	Work effectively within a team.
d3	Access information effectively.

3. Course Contents

Week No.	Topics	Lecture Hours
1-4	Introduction to immune system	**8**
5-6	Cancer immunotherapy	**4**
7-9	Immune system Aberration	**6**
10-12	Immunostimulants and immunosuppressants	**6**
Total: 12 weeks		**24**

4- Matrix of knowledge and skills of the course (contents versus ILOs of the course)

Week	Topics	Course ILOs			
		K.U*	IS**	P.P.S***	G.T.S****
1	Introduction to immune system	a1,a2, a3, a4	b1, b2, b3	c1	d1, d2, d3
2	Cancer immunotherapy	a1,a2, a3, a4	b1, b2, b3	c1	d1, d2, d3
3	Immune system Aberration:	a1,a2, a3, a4	b1, b2, b3	c1	d1, d2, d3
4	Immunostimulants and immunosuppressants	a1,a2, a3, a4	b1, b2, b3	c1	d1, d2, d3

** Knowledge and Understanding*
***Intellectual Skills*
****Professional and Practical Skills*
*****General and Transferable Skills*

5- Teaching and Learning Methods:

5.1	**Lectures using Power Point** (PPT) presentations
5.2	**Lectures using whiteboard**
	Video-recorded lectures, uploaded to the University Portal for Online learning
	Activities and **tasks required to develop students' self-learning skills**.
	Tutorial, **Class Activity** and **Group Discussion** to explain what has not been understood
	Interactive Sessions using Microsoft Teams
	Internet search and Research Assignments to design **Formative Assignments**
	Seminar / Workshop
	Case study

6- Student Assessment:

	Assessment Methods		**Assessment Schedule**	**Weighing of Assessments**
Assessment 1	**Written Exam (Final)**	Paper exams that are corrected electronically and/or manually. To assess understanding, intellectual, professional skills	weeks 14-15	90 Marks 90%
Assessment 2	**Oral Exam**	To assess understanding, intellectual skills, General and Transferable skills	weeks 14-15	10 Marks 10%
				100 %

7- List of References

	Reference	**Type**
1.	Egyptian knowledge bank	website
2.	Principles of Immunopharmacology; Editors: Nijkamp, Frans P., Parnham, Michael J. (Eds.).	Essential Book **(Text Books)**
3.	Immunopharmacology : Principles and Perspectives Authors: Drews, Jürgen .	Essential Book **(Text Books)**

8- Facilities required for teaching and learning

-Class room	**Smart lecture rooms provided with Data show - Computers, Internet**. ……..
- Library	**supplied by recent scientific books and journals**
Others	**Access to research engines for scientific periodicals**

9. Signature

Course Coordinator	Head of Department	Date
Prof. Dr. **Nariman M. Gamil**	**Prof Dr.** **Manar A. Nader**	May 2022

* Date of Dept. Council Approval

Dept. of Pharmacology and Toxicology	Course Specification	PhD in Pharmaceutical Sciences (Pharmacology)

PhD in pharmaceutical sciences

(Pharmacology & toxicology)

Course Specification

Academic year: 2021/2022

البرنامج
دكتوراة في العلوم الصيدلية (الادوية و السموم)

توصيف مقرر
اتجاهات حديثة في علم الادوية
New Trends in Pharmacology

رئيس القسم
أ د. منار أحمد نادر

منسق المقرر
أ د. منار أحمد نادر

General

University	Mansoura
Faculty	Pharmacy
Department offering the course	Pharmacology & toxicology
Department supervising the course	Pharmacology & toxicology
Program on which the course is given	PhD program
Academic Level	Postgraduate
Academic year	2021/2022 - Second semester
Date of course specification approval	May 2022

A.Basic Information : Course data :

Course Title	New Trends in Pharmacology
Course Code	PHP-303
Prerequisite	------
Teaching Hours: Lecture:	2
Practical:	0
Total Credit Hours	2

B. Professional Information

1- Overall Aims of Course:

Upon successful completion of the course, the PhD students should:

1.1. Explore, in depth, a particular area of pharmacology.
1.2. Read the recent and up-to-date scientific literature in a pharmacological field.
1.3. Have the appropriate level of knowledge and skills in advanced pharmacology and therapeutics.
1.4. Integrate the knowledge of advanced pharmacology to optimize experimental/clinical research.
1.5. Get proficiency in problem solving, experimental design, and evaluation of data of published research in the field of advanced pharmacology.

2- Intended Learning Outcomes (ILOs)

a. *Knowledge and Understanding*

After completion of the course, graduates will be able to

a1	Identify and outline the mechanism of action of drugs at the molecular and sub-cellular levels.
a2	Recall and reproduce principles of experimental design,
a3	Describe different experimental designs and principles of research ethics.
a4	Identify advanced research approaches in the field of pharmacology.

b. Intellectual Skills

After completion of the course, graduates will be able to

b1	Evaluate recent studies/advances in the area of basic and applied pharmacology.
b2	Assess quality of scientific research in published articles

c. Professional and Practical Skills

After completion of the course, graduates will be able to

c1	Define and explain advanced methodologies of recently published pharmacological research.
c2	Provide appropriate criticism of data emerging from recent research.

d. General and Transferable Skills

After completion of the course, graduates will be able to

d1	Review and analyze relevant literatures.
d2	Work effectively within a team.

3. Course Contents

Week No.	Lecture Topics
1	Recent advances in Gene therapy
2	
3	Recent advances for therapeutic use of anti-angiogenesis agents
4	
5	Recent advances for treatment of cardiovascular diseases
6	
7-12	Recent advances for treatment of asthma and NASH
Total 12 weeks	

4- Matrix of knowledge and skills of the course (contents versus ILOs of the course)

Week	Topics	Course ILOs			
		K.U*	IS**	P.P.S***	G.T.S****
1-2	Recent advances in Gene therapy	a1, a2 ,a3, a4	b1,b2	c1, c2	d1, d2
3-4	Recent advances for therapeutic use of anti-angiogenesis agents	a1, a2 ,a3, a4	b1,b2	c1, c2	d1, d2
5-6	Recent advances for treatment of cardiovascular diseases	a1, a2 ,a3, a4	b1,b2	c1, c2	d1, d2
7-12	Recent advances for treatment of asthma and NASH	a1, a2 ,a3, a4	b1,b2	c1, c2	d1, d2

** Knowledge and Understanding* ***Intellectual Skills* ****Professional and Practical Skills*
*****General and Transferable Skills*

5- Teaching and Learning Methods:

5.1	Lectures
5.2	Tutorials

6- Student Assessment:

	Assessment Methods	**Assessment Schedule**	**Weighing of Assessments**
Assessment 1	**Written Exam (Final)**	End of semester	90%
Assessment 2	**Oral Exam**	End of semester	10%
			100 %

7- List of References

	Reference	Type
1.	Published reviews and articles	Articles
2.	Modern pharmacology with clinical applications : Charles R. Craig , Robert E. Stitzel	Books
3.	Advances in Pharmacology:series Pharmacological Research Journal of British journal of pharmacology Molecular Pharmacology Pubmed.com	Periodicals/websites

8- Facilities required for teaching and learning

-Class room	Smart lecture rooms provided with Data show
- Library	Library supplied by recent scientific books and journals/ Access to research engines for scientific periodicals.

9. Signature

Course Coordinator	Head of Department	Date
Prof Dr. Manar A. Nader	Prof Dr. Manar A. Nader	May 2022*

* Date of Dept. Council Approval

Dept. of Pharmacology and Toxicology	Course Specification	PhD in Pharmaceutical Sciences (Pharmacology)

PhD in Pharmaceutical Sciences (Pharmacology)

Course Specification

Academic year: 2021/2022

البرنامج	توصيف مقرر
الدكتوراة في العلوم الصيدلية (فارماكولوجي)	العلاج الدوائي-2 Pharmacotherapeutics-II
رئيس القسم	منسق المقرر
أ د. منار أحمد نادر	أ.د. غادة محمد صديق

General

University	Mansoura
Faculty	Pharmacy
Department offering the course	Pharmacology and Toxicology
Department supervising the course	----
Program on which the course is given	PhD in Pharmaceutical sciences
Academic Level	Postgraduate
Academic year	2021/2022 - First semester
Date of course specification approval	May 2022

A.Basic Information : Course data :

Course Title	Pharmacothrapeutics II
Course Code	PHP-302
Prerequisite	------
Teaching Hours: Lecture	2
Total Credit Hours	2

B. Professional Information

1- Overall Aims of Course:

The aim of the course is to provide pharmacy graduates with information on the etiology, clinical signs and symptoms, investigations and principles of treatment of disease important to pharmacists in their development of patient-oriented practice.

2- Intended Learning Outcomes (ILOs)

2.1. *Knowledge and Understanding*

After completion of the course, graduates will be able to

a1	Explain the principles and fundamentals of pharmacology &pharmacotheraputics.
a2	Explain the theories and fundamentals of drug discovery and their application in different diseases from different etiologies and pathophysiologies.
a3	Identify drug-related problems and conduct scientific evaluation of drugs' pharmacological effects.

a4	Define the principles and the basics of quality in professional practice in the fields of pharmacology and other related fields.

2.2. Intellectual Skills

After completion of the course, graduates will be able to

b1	Evaluate gained information in the field of pharmacology &pharmacotheraputics.
b2	Demonstrate logic and critical thinking to suggest solutions for scientific and professional problems according to accompanying circumstances and causes.
b3	Utilize the available professional and scientific resources and research skills to solve problems.
b4	Proper choice and tailoring of experimental regimen putting in consideration every aspect concerning drug efficacy, safety, adverse reactions as well as drug interactions.

2.3. Professional and Practical Skills

After completion of the course, graduates will be able to

c1	It is expected that students will complete the program with ample training in physiology, grounding in cell and molecular biology& immunology.
c2	Carry out scientific research and contribute to the knowledge in the field of pharmacology and toxicology.
c3	Illustrate the effect of his/her professional practice on the community in addition to different methods of environmental development and maintenance.

2.4. General and Transferable Skills

After completion of the course, graduates will be able to

d1	Practice self- assessment and learning needed for continuous professional development.
d2	Utilize different available information resources relevant to pharmacology and toxicology.

d3	Promote critical thinking, problem-solving and decision-making capabilities.
d4	Deal with obstacles and problems.

3. Course Contents

Week No.	Topics	Week	Lecture Hours
1	Urological disorders	**1-3**	**6**
2	Gynecological disorders	**4-6**	**6**
3	Neurological disorders	**7-9**	**6**
4	Oncologic disorders	**10-12**	**6**
Total:		**12 weeks**	**24 hour**

4- Matrix of knowledge and skills of the course (contents versus ILOs of the course)

	Topics	Course ILOs			
		K.U*	**IS****	**P.P.S*****	**G.T.S******
1	Urological disorders	a1,a2, a3, a4	b1, b2, b3,b4	c1,c2,c3	d1, d2, d3,d4
2	Gynecological disorders	a1,a2, a3, a4	b1, b2, b3,b4	c1,c2,c3	d1, d2, d3,d4
3	Neurological disorders	a1,a2, a3, a4	b1, b2, b3,b4	c1,c2,c3	d1, d2, d3,d4
4	Oncologic disorders	a1,a2, a3, a4	b1, b2, b3,b4	c1,c2,c3	d1, d2, d3,d4

** Knowledge and Understanding* ***Intellectual Skills* ****Professional and Practical Skills*
*****General and Transferable Skills*

5- Teaching and Learning Methods:

5.1	**Lectures using Power Point** (PPT) presentations
5.2	**Lectures using whiteboard**
	Video-recorded lectures, uploaded to the University Portal for Online learning
	Activities and **tasks required to develop students' self-learning skills**.
	Tutorial, **Class Activity** and **Group Discussion** to explain what has not been understood
	Interactive Sessions using Microsoft Teams
	Internet search and Research Assignments to design **Formative Assignments**
	Practical Training / Laboratory
	Seminar / Workshop
	Case study
	Role play

6- Student Assessment:

	Assessment Methods		Assessment Schedule	Weighing of Assessments
Assessment 1	**Written Exam (Final)**	Paper exams that are corrected electronically and/or manually. To assess understanding, intellectual, professional skills	Weeks 14-15	90%
Assessment 2	**Oral Exam**	To assess understanding, intellectual skills, General and Transferable skills	Weeks 14-15	10%
				100 %

7- List of References

	Reference	Type
1.	An Introduction to Medicinal Chemistry. 6th Edition, By Graham L. Patrick (Author) **Publisher: Oxford University Press, Oxford; 2017**	Essential Book **(Text Books)**
2.	Pharmacotherapy - principles and practice, Editors: Marie A. Chisholm-Burns, Terry L. Schwinghammer, (Eds.).	Text Book
3.	http:// www.fda.gov http://www.drugs.com http://www.eda.mohp.gov.eg	websites

8- Facilities required for teaching and learning

-Class room	**Data show- Computers, Internet**. ……..
- Laboratory facilities	**Microscopes, equipment, tools** …….
- Library	**Books**
Others	**Research engines**

9. Signature

Course Coordinator	Head of Department	Date
Prof. Dr. Ghada Mohammed Suddek	Prof Dr. Manar A.Nader	May 2022

* Date of Dept. Council Approval

Dept. of Pharmacology and Toxicology	Course Specification	PhD in pharmaceutical sciences

PhD in Pharmaceutical Sciences (Pharmacology)

Course Specification

Academic year: 2021/2022

البرنامج دكتوراه الفلسفة	توصيف مقرر الأمراض المحدثة بالأدوية Iatrogenic diseases
رئيس القسم أ د. منار أحمد نادر	منسق المقرر أ.د. غادة محمد صديق

General

University	Mansoura
Faculty	Pharmacy
Department offering the course	Pharmacology and Toxicology
Department supervising the course	----
Program on which the course is given	PhD in Pharmaceutical sciences (Pharmacology)
Academic Level	Postgraduate
Academic year	2021/2022 - second semester
Date of course specification approval	May 2022

A.Basic Information : Course data :

Course Title	Iatrogenic Diseases
Course Code	PHP-305
Prerequisite	------
Teaching Hours: Lecture	2
Practical:	-----
Total Credit Hours	2

B. Professional Information

1- Overall Aims of Course:

1.1 Learn advanced knowledge, professional research skills, attitudes and research and ethical values in the field of pharmacology and iatrogenic diseases and integrate with the relevant subjects in his/her professional practice.

1.2 Apply all traditional and up to date techniques implemented in the field of drug discovery and their different actions.

1.3 Apply the scientific thinking approaches and adapt problem based learning in subjects relevant to pharmacotherapy.

1.4 Formulate hypotheses based on current concepts in pharmacological field.

2- Intended Learning Outcomes (ILOs)

a. *Knowledge and Understanding*

After completion of the course, graduates will be able to

a1	Explain the principles and fundamentals of pharmacology &iatrogenic diseases.
a2	Explain the theories and fundamentals of drug discovery and their application in different diseases from different etiologies and pathophysiology.
a3	Identify drug-related problems and conduct scientific evaluation of drugs' pharmacological effects.
a4	Define the principles and the basics of quality in professional practice in the fields of pharmacology and other related fields.

b. Intellectual Skills

After completion of the course, graduates will be able to

b1	Evaluate gained information in the field of pharmacology and iatrogenic diseases
b2	Assess professional and scientific risks in pharmacological and toxicological evaluation of drugs.
b3	Plan to improve performance and research in the field of pharmacology.
b4	Participate in comprehensive scientific and professional discussions and communications based on scientific evidences and proofs.

c. Professional and Practical Skills

After completion of the course, graduates will be able to

c1	Illustrate the effect of his/her professional practice on the community in addition to different methods of environmental development and maintenance.

d. General and Transferable Skills

After completion of the course, graduates will be able to

d1	Practice self- assessment and learning needed for continuous professional development.
d2	Utilize different available information resources relevant to pharmacology and toxicology.
d3	Promote critical thinking, problem-solving and decision-making capabilities.
d4	Deal with obstacles and problems.

3. Course Contents

Week No.	Lecture Topics	Hours
1	Drug induced dermatologic disease	**2**
2	Drug induced neurologic disease	**2**
3	Drug induced psychiatric disease	**2**
4-5	Drug induced cardiovascular disease	**4**
6	Drug induced hematologic syndrome	**2**
7	Drug induced pulmonary disorders	**2**
8	Drug induced endocrine disorders	**2**
9	Drug induced gastrointestinal disease	**2**
10-11	Drug induced kidney disorders	**4**
12	Neoplastic diseases	**2**
Total 12 weeks		**24 hr**

4- Matrix of knowledge and skills of the course (contents versus ILOs of the course)

Week	Topics	Course ILOs			
		K.U*	IS**	P.P.S***	G.T.S****
1	Drug hyprsensitivity	a1,a2, a3, a4	b1, b2, b3,b4	c1	d1, d2, d3,d4
2	Teratogenic mechanisms of medical drugs	a1,a2, a3, a4	b1, b2, b3,b4	c1	d1, d2, d3,d4
3	Nosocomial infections	a1,a2, a3, a4	b1, b2, b3,b4	c1	d1, d2, d3,d4
4	Drug induced gastrointestinal disease	a1,a2, a3, a4	b1, b2, b3,b4	c1	d1, d2, d3,d4
5	Drug induced hematologic syndrome	a1,a2, a3, a4	b1, b2, b3,b4	c1	d1, d2, d3,d4
6	Drug induced hepatic disorders	a1,a2, a3, a4	b1, b2, b3,b4	c1	d1, d2, d3,d4

** Knowledge and Understanding* ***Intellectual Skills* ****Professional and Practical Skills*
*****General and Transferable Skills*

5- Teaching and Learning Methods:

5.1	**Lectures using Power Point** (PPT) presentations
5.2	**Lectures using whiteboard**
5.3	Activities and **tasks required to develop students' self-learning skills**.
5.4	**Tutorial**, **Class Activity** and **Group Discussion** to explain what has not been understood
5.5	Internet search and Research Assignments to design **Formative Assignments**

6- Student Assessment:

	Assessment Methods		**Assessment Schedule**	**Weighing of Assessments**
Assessment 1	**Written Exam (Final)**	Paper exams that are corrected electronically and/or manually. To assess understanding, intellectual, professional skills	weeks14-15	90 %
Assessment 2	**Tutorial / or Practical** assignments **and Semester work**	Assignments prepared by students and sent to the supervisor electronically for evaluation. To assess professional skills		----
Assessment 3	**Oral Exam**	To assess understanding, intellectual skills, General and Transferable skills	weeks14-15	10 %
				100 %

7- List of References

	Reference	**Type**
1.	**Course notes** prepared by graduates	

8- Facilities required for teaching and learning

-Class room	Smart lecture rooms provided with Data show
- Library	Library supplied by recent scientific books and journals.
Others	Access to research engines for scientific periodicals.

9. Signature

Course Coordinator	**Head of Department**	**Date**
Prof. Dr. **Ghada M. Suddek**	**Prof Dr.** **Manar A. Nader**	May 2022

* Date of Dept. Council Approval

Program: PhD in Pharmaceutical Sciences (*Pharmacology and Toxicology*)

Pharmacology and Toxicology department

Program Specification

Academic Year: *2021/2022*

رئيس القسم
أ.د/ منار احمد نادر

A-Basic Information

1	**Faculty**	**Pharmacy**
2	**Program Title:**	**PhD in Pharmaceutical Sciences (Pharmacology and toxicology)**
3	**Program Type:**	**Single**
4	**Department (s):**	**Department of pharmacology and toxicology**
5	**Final award:**	**Ph D degree in pharmacology and toxicology**
6	**Coordinator:**	**Prof. Dr. Manar A. Nader**
7	**External Evaluator(s):**	**Prof. Dr.George Samir**
8	**Date of Program Specification Approval:**	**Department council: May 2022** **Faculty council: May 2022**

B-Professional Information

1-Program Aims

Upon successful completion of the program, the PhD candidate is expected to demonstrate comprehensive knowledge, clear understanding and outstanding skills in the field of Pharmacology and Toxicology. The candidate is expected to:

1.1	Learn advanced knowledge, professional research skills, attitudes and research and ethical values in the field of pharmacology, immunopharmacology, pharmacotheraputics, genotoxicity , and iatrogenic diseases and integrate with the relevant subjects in his/her professional practice.
1.2	Apply the basics and methodologies of scientific research and manipulate various tools in the field of pharmacology and toxicology.
1.3	Master practical research procedures according to the good laboratory practice (GLP) basics in pharmacology labs and perform experiments with adaptation of safety guidelines.
1.4	Apply of all traditional and up to date techniques implemented in the field of drug discovery and their different actions.
1.5	Apply the scientific thinking approaches and adapt problem based learning in subjects relevant to pharmacotherapy and pharmacogenomics.
1.6	Formulate hypotheses based on current concepts in pharmacological field.
1.7	Design and conduct research projects.
1.8	Analyze and interpret results and information acquired from primary literature sources.

1.9	Manipulate computer program, online database, software and other IT skills to get information and analyze the obtained research data.
1.10	Attain communication skills, research ethics, time management, decision-making, and team-working.

2-Intended Learning Outcomes (ILOs)

A- Knowledge and Understanding

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

A1	Explain the principles and fundamentals of pharmacology, immunopharmacology, pharmacotheraputics, genotoxicity , and iatrogenic diseases
A2	Explain the theories and fundamentals of drug discovery and their application in different diseases from different etiologies and pathophysiologies.
A3	Identify drug-related problems and conduct scientific evaluation of drugs' pharmacological effects.
A4	Utilize effectively all basic and recent techniques and technological tools.
A5	Identify the legal and ethical issues of research and professional practice in pharmacology.
A6	Define the principles and the basics of quality in professional practice in the fields of pharmacology and other related fields.
A7	Identify appropriate types of data needed to tackle a certain research problem.

B- Intellectual Skills

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

B1	Evaluate gained information in the field of pharmacology, immunopharmacology, pharmacotheraputics, genotoxicity , and iatrogenic diseases
B2	Demonstrate logic and critical thinking to suggest solutions for scientific and professional problems according to accompanying circumstances and causes.
B3	Demonstrate creativity and innovative scientific and professional approaches regarding pharmacology.
B4	Utilize the available professional and scientific resources and research skills to solve problems.
B5	Assess professional and scientific risks in pharmacological and toxicological evaluation of drugs.
B6	Plan to improve performance and research in the field of pharmacology.
B7	Interpret and validate the obtained research data.
B8	Recommend professional and scientific decisions based on proofs, evidences and available data.

B9	Participate in comprehensive scientific and professional discussions and communications based on scientific evidences and proofs.
B10	Proper choice and tailoring of experimental regimen putting in consideration every aspect concerning drug efficacy, safety, adverse reactions as well as drug interactions.

C- Professional and Practical Skills

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

C1	Apply different statistical methods for data analysis and validation.
C2	Develop different research methodologies and good experimental skills.
C3	Manage safely and efficiently advanced technological research tools and equipment relevant to drug discovery and evaluation research.
C4	It is expected that students will complete the program with ample training in physiology, grounding in cell and molecular biology, genetics, immunology, and pathology.
C5	Carry out scientific research and contribute to the knowledge in the field of pharmacology and toxicology.
C6	Write accurately, evaluate professional reports and publish scientific research papers in international scientific journals and conferences.
C7	Write thesis in a scientific and precise way.
C8	Illustrate the effect of his/her professional practice on the community in addition to different methods of environmental development and maintenance.

D- General and Transferable Skills

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

D1	Communicate clearly by verbal and written means.
D2	Manipulate computer program, online database, software and other IT to get information and analyze the obtained research data.
D3	Practice self- assessment and learning needed for continuous professional development.
D4	Utilize different available information resources relevant to pharmacology and toxicology.
D5	Promote critical thinking, problem-solving and decision-making capabilities.
D6	Deal with obstacles and problems.
D7	Work effectively in a team and offer expertise and advice to others
D8	Develop creativity and time management abilities.
D9	Evaluate and criticize scientific work, literature and research data.
D10	Adopt ethical, legal, professional responsibilities and safety guidelines.

D11	Develop presentation skills, give seminars and defend thesis in public.

3-Academic Reference Standards (ARS):

Approved by both the Department and Faculty Councils
Department council Approval Date: *15/3/2021,*
Faculty council Approval Date: *20/3/2021*

3a- Academic References Standards: (**Attached**)

3b-Comparison of provision to External References

Achievement of academic reference standards via program Intended Learning Outcomes.

ILOs	ARS	Program
1. **Knowledge and Understanding**	**1.1**	A1, A2
	1.2	A3
	1.3	A4
	1.4	A5
	1.5	A6
2. **Intellectual Skills**	**1.6**	A6, A7
	2.1	B1, B9
	2.2	B2
	2.3	B2, B4, B7
	2.4	B4,B10
	2.5	B5
3. **Professional and Practical Skills**	**2.6**	B3, B6
	2.7	B8
	3.1	C4,C5
	3.2	C1, C2, C3
	3.3	C6, C7, C8
4. **General and Transferable Skills**	**4.1**	D1, D11
	4.2	D2
	4.3	D3
	4.4	D4
	4.5	D5, D6
	4.6	D7
	4.7	D8

4-Curriculum Structure and Contents

4A. Program duration: 2-5 years.

4B. Program structure:

a- The program consists of 50 credit hours of study (8 credit hours of courses and 42 credit hours for thesis).

b- Courses include 6 credit hours of obligatory courses, in addition to 2 credit hours for an elective course, All courses possess the code number [300], According to Faculty By-Law..

c- A scientific research thesis of 42 credit hours represents a main component of the program. It is achieved in a subject assigned by the supervision committee, endorsed by the Department Council, the committee of graduate studies & research and the Faculty Council.

d- The student should publish at least one scientific research paper in scientific journals before the public defense of the Thesis.

4C. Program Components:

1- Courses according to the By-law

Code number	Name of the course	Type	Credit Hours	Semester
(PHP-301)	Immunopharmacology	Compulsory	2	Fall
PHP-302	Pharmacotherapeutics II	Compulsory	2	Fall
PHP-303	New Trends in Pharmacology	Compulsory	2	Spring
PHP-304	Genotoxicity	Elective	2	Spring
PHP-305	Iatrogenic Diseases	Elective	2	Spring
Total (Courses)			8	
	Thesis		42	
Total			50	

2- Achievement of Program Intended Learning Outcomes by its components

Course Name	C.H	Program ILOs (by No.)			
		K.U*	IS**	P.P.S***	G.T.S****
Immunopharmacology ***(PHP-301)***	**2**	A1, A4	B1	C4, C5	D3, D4
Pharmacotherapeutics II ***(PHP-302)***	**2**	A1	B1, B2	C5	D3, D4
New Trends in Pharmacology ***(PHP-303)***	**2**	A2	B3, B6	C6	D5, D8
Genotoxicity ***(PHP-304)*** ***(elective)***	**2**	A1, A3	B1, B5, B10	C4, C5	D4, D5, D10
Iatrogenic Diseases ***(PHP-305)*** ***(elective)***	**2**	A1, A3	B1, B2, B5	C1, C3, C4	D2, D3, D8
Total	**8**				
Thesis	**42**	A4, A5, A6	B2, B3, B4, B5, B6, B7, B8, B9	C1, C2, C3, C4, C5, C6, C7, C8	D1, D2, D3, D4, D5, D6, D7, D8, D9, D10, D11
Total	**50**				

* ***K****nowledge and* ***U****nderstanding* *****I****ntellectual* ***S****kills*

Code	Course title	K.U*						IS**									
		A 1	A 2	A 3	A4	A5	A6	B1	B2	B3	B4	B5	B6	B7	B8	B9	B10
PHP-301	Immunopharmacology	√			√			√									
PHP-302	Pharmacotherapeutics II	√						√	√								
PHP-303	New Trends in Pharmacology		√							√			√				
PHP-304	Genotoxicity (E)	√		√				√			√						√
PHP-305	Iatrogenic Diseases (E)	√		√				√	√			√					
Thesis					√	√	√		√	√	√	√	√	√	√	√	

* ***K****nowledge and* ***U****nderstanding*

*****I****ntellectual*

E ***E****lective course*

Code	Course title	P.P.S***								G.T.S****										
		C1	C2	C3	C4	C5	C6	C7	C8	D1	D2	D3	D4	D5	D6	D7	D8	D9	D10	D11
PHP-301	Immunopharmacology				√	√						√	√							
PHP-302	Pharmacotherapeutics II					√						√	√							
PHP-303	New Trends in Pharmacology						√													
PHP-304	Genotoxicity (E)				√	√							√	√					√	
PHP-305	Iatrogenic Diseases (E)	√		√	√						√	√					√			
Thesis		√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√

****Professional and Practical Skills*

*****General and Transferable Skills*

E *Elective course*

5- Student Assessment Methods

5.1- Written exam (special courses).	To assess Knowledge and Understanding and Intellectual Skills
5.2- Oral exam (special courses).	To assess Knowledge and Understanding, Intellectual Skills and General and transferable Skills
5.3- Scientific seminar for thesis registration	To assess Knowledge and Understanding, Intellectual Skills and General and transferable Skills
5.4- Published scientific research paper.	Knowledge and Understanding, Intellectual Skills, Professional and practical Skills
5.5- Thesis writing	Knowledge and Understanding, Intellectual Skills, Professional and practical Skills & General and Transferable Skills
5.5- Public presentation and discussion of the thesis.	Knowledge and Understanding, Intellectual Skills, Professional and practical Skills & General and Transferable Skills

6- Program Admission Requirements

6.1. The candidate should hold a Master degree in pharmaceutical sciences in the same specialization from any faculty of pharmacy from Egypt or Arabian countries or foreign universities recognized by the Supreme Council of Universities.

6.2. The candidate should be available for study at least two days per week throughout the duration of study.

6.3. The candidate should follow postgraduate rules of by-law (**2014**) and its modified by-law **(2017)** of Faculty of Pharmacy-Mansoura University.

7- Regulations for progression and program completion

7.1. The minimum duration of time to gain the PhD degree is two years from the approval date of university council of graduate studies ad research on the registration of the PhD thesis.

7.2. The maximum duration of time to gain the PhD degree is 5 years from the date of registration, putting in consideration the periods of enrollment suspension. It is possible to extend this period up to two years (one year at a time) based on a request from the candidate's major supervisor, a suggestion from the department council and the committee of graduate studies & research and the approval of the faculty council. The final decision should be endorsed by the university council of graduate studies & research.

7.3. The student has to pass the assigned courses, and to practically do a scientifc research thesis for complete fulfilment of the PhD degree.

7.4. An annual progress report is presented by the supervisors of Thesis to the Dept Council by December.

7.5. The candidate should follow postgraduate rules of by-law (**2014**) and its modified by-law **(2017)** of Faculty of Pharmacy-Mansoura University.

8- Facilities Required for Search:

8.1- Computers.

8.2- Library and digital library supplied by recent scientific books and journals.

8.3- Laboratories with enough chemicals, apparatus and advanced instruments.

8.4- Access to research engines for scientific periodicals in the field of pharmacology and toxicology.

9-Thesis

A thesis should be prepared by the student for complete fulfilment of the PhD degree.

10- Evaluation of program

Evaluator	Method	Sample
Internal evaluator	Program evaluation Courses evaluation	Program report Courses report
External evaluator	Program evaluation Courses evaluation	Program report Courses report
Stakeholders	Questionnaires	To be Attached
Postgraduates	Questionnaires	To be Attached
Self-evaluation	Matrices	To be Attached
Supervisors of Thesis	Reports	Reports of staff members of committee to evaluate the thesis

Program Coordinator: **Prof. Dr. Ghada M.Suddek**

Head of Department: **Prof. Dr. Manar A. Nader**

Signature:

Date:

Annex 1

Attach courses specifications.

Program: PhD in Pharmaceutical Sciences (*Pharmacology and Toxicology*)

Pharmacology and Toxicology Department

PhD Thesis Specification

Academic Year: 2021/2022

رئيس القسم

أ.د/ منار احمد نادر

A-Basic Information

1	**Faculty**	**Pharmacy**
2	**Program Title:**	**PhD of Pharmaceutical Sciences (*Pharmacology and Toxicology*)**
3	**Program Type:**	**Single**
4	**Department (s):**	***Pharmacology and Toxicology***
	Total credits of the Thesis	**42 C. H.**
	Total credits of the Program	**50 C.H.**
5	**Final award of the Program:**	**PhD degree of Pharmaceutical Sciences (Pharmacology and Toxicology)**
6	**Coordinator:**	**Prof. Dr. Manar A. Nader**
7	**External Evaluator(s):**	Prof. Dr. George samir
8	**Date of Program Specification Approval:**	***Department council: May 2022, Faculty council: May 2022***

B-Professional Information

1-Aims

The overall aims of the thesis:

1.1	Learn professional research skills in the field of pharmacology and toxicology.
1.2	Apply various methodologies of scientific research in the field of pharmacology and toxicology.
1.3	Perform practical experiments with application of safety guidelines.
1.4	Apply of all available techniques implemented in the field of pharmacology and toxicology
1.5	Design and conduct research projects.
1.6	Analyze information obtained from primary literature sources.
1.7	Manipulate computer program and softwares to analyze the obtained research data.

2-Intended Learning Outcomes (ILOs)

A- Knowledge and Understanding:

Upon successful completion of the thesis, the graduate should be able to efficiently demonstrate the essential knowledge and understanding of:

A1	Evaluate drugs' pharmacological effects.
A2	Utilize all techniques and technological tools.
A3	Identify ethical issues of research and professional practice in the field of pharmacology.
A4	Identify appropriate types of data needed to deal with a certain research problem.

B- Intellectual Skills

By the end of this thesis, the graduate should be able to:

B1	Utilize the available resources and research skills to solve problems.
B2	Interpret and analyze the obtained research data.
B3	Recommend scientific decisions based on evidences and available data.
B4	Participate in scientific and professional discussions and communications based on scientific evidences and proofs.

C- Professional and Practical Skills

By the end of this thesis, the graduate should be able to:

C1	Apply different statistical methods for data analysis and interpretation.
C2	Develop different research methodologies.
C3	Manage safely and efficiently technological research tools for drug discovery and evaluation research.
C4	Conduct scientific research in the field of pharmacology and toxicology.
C5	Write professionally and publish scientific research papers in international scientific journals and conferences.
C6	Write thesis in a scientific and precise way.

D- General and Transferable Skills

By the end of this thesis, the graduate should be able to:

D1	Manipulate computer program, online database, software and other IT to get information and analyze the obtained research data.
D2	Practice self- assessment and learning needed for continuous professional development.

D3	Utilize different available information resources relevant to pharmacology and toxicology.
D4	Promote critical thinking, problem-solving and decision-making capabilities.
D5	Deal with obstacles and problems.

3- Thesis Contents:

Part	Topics
1	Abstract (Arabic and English)
2	Introduction
3	Aims, Objectives and Rational of the work
4	Results and Discussion, covering all fields
5	Methodology and Experimental Work of all fields
6	Conclusion
7	References

4- Matrix of knowledge and skills of the Thesis:

Part	Topics	Course ILOs			
		K.U*	**IS****	**P.P.S*****	**G.T.S******
2	Introduction	A1, A3, A4	B1	-	D1
3	Objectives/Rational	A2, A3, A4	B1, B4	-	D1, D2, D3
4	Results and Discussion	A1, A2, A3, A4	B1, B2, B3, B4	C1, C5, C6	D1, D2, D3, D4, D5
5	Experimental Work	A1, A2, A3	B1	C1, C2, C3, C4	D2, D3, D5
6	Conclusion	-	B3	C5, C6	D4

* ***K**nowledge and **U**nderstanding* *****I**ntellectual **S**kills* ******P**rofessional and **P**ractical **S**kills* *******G**eneral and **T**ransferable **S**kills*

5. Student Assessment:

A written Thesis	
Published Research Paper(s)	
Public Defense	
Committee-in-Charge Report	
Dept Council Approval	

Guidelines of the Thesis (according to By-Law).

1- The minimum period for obtaining a PhD is two years from the date of approval of the University's Graduate Studies Council for registration.
2- The maximum limit for obtaining a doctoral degree is five years from the date of registration, taking into account cases of suspension of registration, and registration may be extended upon the request of supervisors and the approval of the relevant department council, the Graduate Studies and Research Committee, and the College Board for an academic year with a maximum of two years.

3- The student must pass the English Language Examination with the minimum score specified by the University Studies Board to approve the PhD defense date.

4- The total number of credit hours for obtaining a doctoral degree is 50 credit hours (8 course hours, 42 credit hours per thesis).

5- The student conducts a research on a topic determined by the supervisory committee and approved by the relevant department council and the college, graduate studies and research councils.
6- The researcher submits, before registering for the academic degree, the research plan in a public discussion in the department to discuss the topic of the thesis, determine the objectives of the research, the extent of its application, potential problems and how to overcome them.

7- After the approval of the Graduate Studies and Research Committee and the College Board, the scientific departments develop specialized courses from code (300) whose number of credit hours does not exceed 8 hours, and their average points are not less than 2.00, and these hours are calculated within the hours prescribed for the program.

8- The scientific thesis is the responsibility of the relevant department council and is accomplished scientifically and technically under the responsibility of the supervisory committee. Scientific, technical and administrative support must be provided to the researcher for its completion, and the supervision committee is formed as follows:
9- The College Council, upon the proposal of the relevant Department Council, appoints a professor who supervises the thesis (principal supervisor). The council may entrust the supervision of the thesis to one of the assistant professors.
10- It is permissible for the supervisors to be many professors or assistant professors, and teachers may participate with a maximum of one in the same specialty.
11- A member from abroad who has experience in the specialty to which the dissertation belongs may be joined to the supervision committee.

12- The student should meet his main supervisor at least once monthly and a semi-annual report must be provided by the supervisor(s) on the progress of student to the department council and the Graduate Studies Committee and the graduate should be given a copy of the report. The annual report must be submitted to the college council in October each year.

13- A postgraduate student registered to obtain a master's degree or a doctorate degree, after completing the thesis preparation, holds a public discussion session on the thesis summary and the results he reached, during which the supervisors determine the extent to which the student fulfills the research point before submitting the thesis to the department council.
14- The principal supervisor submits an application that includes a proposal to form a discussion committee and judge the thesis after preparing it and preparing it for discussion in preparation for

presentation to the Postgraduate Studies and Research Committee and then the College Board for approval and is supported by the following:
15- The report on the validity of the dissertation for discussion, signed by the majority of the members of the supervisory committee, one of whom is the main supervisor.
16- A copy of the thesis prepared according to the instructions for writing scientific theses in the faculty.
17- At least one research published in a scientific refereed journal.
18- The committee for discussion and judgment on the dissertation is formed of three members based on the proposal of the relevant department council, the graduate studies and research committee, and the approval of the college council, one of whom is the main supervisor or two members with one vote. And two other members from among the professors or assistant professors, at least one of them is from outside the college for master's theses, and at least one of them is from outside the university for doctoral theses (the two are from outside the college) according to the text of Article 153 of the Universities Organization Law.

19- The department council approves the individual reports, the group report, and what indicates that the student has made the proposed amendments from the discussion and judgment committee and submitted them to the Graduate Studies and Research Committee and the College Board in preparation for presentation to the University Council.
20- The date of awarding the academic degree is the date on which the University Council approved the College Board's recommendation for grants.
21- The college council, based on the proposal of the discussion and judgment committee, may return the message to the student to correct the errors and complete what the committee deems short of or submit another message in case the thesis is rejected.

6 – Facilities Required:

Laboratory	√
Library	√
Others	-------

Thesis Coordinator	Head of Department	Date
Prof Dr. Ghada M Suddek	Prof Dr. Manar A. Nader	May 2022

* Date of Dept. Council Approval

Program: PhD in Pharmaceutical Sciences
(*Pharmacology*)
Pharmacology and toxicology department

Program Report

Academic Year:
2020/2021

رئيس القسم
أ.د/ منار احمد نادر

signature

A-Basic Information

1.	**Faculty**	Pharmacy
2.	**Program Title:**	PhD in Pharmaceutical Sciences (Pharmacology)
3.	**Program Type:**	Single - Graduate
4.	**Department responsible:**	Pharmacology and toxicology department
5.	**Final award of the Program:**	PhD degree of Pharmaceutical Sciences (Pharmacology)
7.	**External Evaluator(s):**	Prof. Dr. George Samir
8.	**Year of operation:**	2020/2021

B-Statistical Information

Item	Number of students
Started the program	8
Withdrawn	0
Absence	0
Attending the exam	8
Pass	8
Failed	0

1. **Number of students started the program 2020/2021:** 8 students.

2. Percentage of students starting the program this year (relative to the previous year):

No. of students this year (2020/2021)	No. of students last year (2019/2020)	No. of students last year (2018/2019)
8	**4**	**4**

3. Number of students completing the program:

No. students completed the program 2020/2021	Starting year of these students
2	Amir Mohammed: 2018/2019 Mohammed Khalil: 2017/2018

4. Grades of students completed the program in the academic year 2020/2021:

	Course title	Grade	
		Amir Mohammed	Mohammed Khalil
First Semester courses:			
	Immunopharmacology (PHP-301)	77	93
	Pharmacotherapeutics II (PHP-302)	89	84
Second semester courses:			
	New Trends in Pharmacology (PHP-303)	69	94
	Iatrogenic Diseases (PHP-305)	80	91
General University requirements			
	TOEFL/IELTS	√	√
	Thesis Eligibility report	√	√
	One published manuscript	√	√

- **Grades: no. and percentage of each grade:** Non applicable

C. Professional information

Academic standards

1. **Reference academic standards:** Academic reference standards (ARS) for graduate studies.
2. **Achievement of program Intended Learning Outcomes (ILOs):**

Course Title	ILOs covered
Immunopharmacology (PHP-301)	a1,a2,a3,a4,b1,b2,b3,c1,d1,d2,d3
Pharmacotherapeutics II (PHP-302)	a1,a2,a3,a4,b1,b2,b3,c1,d1,d2,d3

New Trends in Pharmacology (PHP-303)	a1,a2,a3,a4,b1,b2,b3,c1,d1,d2,d3
Target Organ toxicity (PHP-304)	a1,a2,a3,a4,b1,b2,b3,c1,d1,d2,d3
Iatrogenic Diseases (PHP-305)	a1,a2,a3,a4,b1,b2,b3,c1,d1,d2,d3
Thesis	

3. Assessment methods:

Assessment Method	Item assessed	ILOs assessed
Written Assessment (written exam, Thesis writing)	**1- Courses** **General 4 Cr Hours** **Special 4 (2+2) Cr Hours**	
Oral Assessment Oral exam,)		
Activity		
Seminars	**2- Thesis 42 Cr Hours**	
Supervisors follow up reports		
Practical Assessment (practical work of thesis)		
One published manuscript		
Oral presentation of thesis.		
Pass	**3- General University Requirements:** including: a- TOEFL / IELTS b- Computer course	

4. Learning resources:

Adequacy of the number and specialty of the faculty members to the requirements of the program:

-Number of department staff: 17

-Number of Ph.D. students: 19

-Students/ staff ratio: 1.12:1

•**Regarding teaching of the courses & thesis supervision:** pharmacology staffs are responsible for courses delivery

•**Adequacy of facilities for thesis completion:**

-research laboratories in the department supported with different instruments in addition to central laboratory in the faculty.

Resources are available for the students such as:

- **Books: Text books as**

Principles of Immunopharmacology; Editors: Nijkamp, Frans P., Parnham, .Michael J. (Eds.)
Immunopharmacology : Principles and Perspectives   ***Authors: Drews, Jürgen .***

- **References:** Scientific papers taken from international journals in the field of pharmacology and toxicology.

Others: web sites:

- https://www.ekb.eg/
- www.biomed central.com
- www.science direct.com
- www. medscape.com.
- www.Pubmed.com

5. The basis of formation of committees' examiners:

For courses and seminars: Teaching members and the head of department.

For thesis: The examiner committee is composed of:

- The principal supervisor with or without one supervisor from the co-supervision committee plus two evaluators at least one from outside the faculty.

6. System of external examiners: **Available** ■ **Not available** □

Department response to student and external evaluation system:

Department staff members usually respond to the interests of postgraduate students if they prefer to go deep in specific fields.

The system of external evaluation of the program has been established by Prof. Dr. George Samir Faculty of pharmacy, Delta University. The comments of external evaluator will be taken into consideration in the next action plan.

7. Proposals for program development

a- Program stucture

- **Program duration:** At least 2 years from the approval date of university council of graduate studies ad research on the registration of the PhD thesis**.**
- **Program level:** Graduate
- **Structure of program hours:**

	Code	Course Title	Lecture	Total Credit Hours
Semester 1	(PHP- 301)	Immunopharmacology	2	2
	(PHP-302)	Pharmacotherapeutics II	2	2
Semester 2	(PHP-303)	New Trends in Pharmacology	2	2
		مقرر واحد اختياري من المقررات التالية **Elective**	2	2
	(PHP-304)	Target Organ toxicity	2	2
	(PHP-305)	Iatrogenic Diseases	2	2
Total (courses)			8	8
		Thesis	42	42
Total			50	50

b. Distribution of program courses:

	Course title	Credit hours	Degree			
			Written	Oral	Total	Exam time
Semester 1	Immunopharmacology (PHP- 301)	2	90	10	100	2
	Pharmacotherapeutics II (PHP-302)	2	90	10	100	2
Semester 2	New Trends in Pharmacology (PHP-303)	2	90	10	100	2
	Target Organ toxicity (PHP-304)	2	90	10	100	2

	Iatrogenic Diseases (PHP-305)	2	90	10	100	2

c. Thesis details

Title	Name of candidate	Supervised by	Date of master degree
Effect of some compounds on alcohol-induced organ dysfunction: An experimental study	Amir Mohamed Ahmed abdelhamid	Prof.Dr. Ghada Suddek Dr. Rania Ramadan Dr. Ahmed Ramadan Dr. George Samir	22/10/2020
Effect of Sodium-Glucose contransporter-2 inhibition on high carbohydrate high fat fed rats	Mohamed Khalil Elmahdy	Prof.Dr. Tarek Mostafa Dr. Manar Gamal	23/12/2020

d. Course, deletions, additions and modifications

- **Teaching different techniques used in pharmacology lab.**

e. Staff development requirements:

- **More advanced text books are needed.**
- **Improvement of IT facilities.**

8. Action plan

The following action plan will be acted upon throughout year (2021/2022)

Action	Completion date	Responsible party
Updating the course according to the most up-to-date scientific research.	**September 2021**	**Allmembers of the course team.**

9. Action plan for improvement:

Action	Person responsible	Completion date
Revision of program ILOs and make required changes	• Program coordinator	2019-2020
Arrange at least one journal club per year	• Program coordinator	2019 - 2020
Improve research facilities	• Vice dean for postgraduate studies and research	2019-2020
Update course contents	• Program coordinator	2019-2020
Organize different workshops to build up students research abilities	• FLDP center • Faculty training unit	2019-2020

Program coordinator / Head of the department:

Prof. Dr. Manar A. Nader

Vice dean of graduate studies and research

Prof. Dr. Khaled B. Selim