

**Ministry of Higher Education and Scientific Research
Scientific Supervision and Scientific Evaluation Apparatus
Directorate of Quality Assurance and Academic Accreditation
Accreditation Department**



Academic Program and Course Description Guide

2024

Academic Program Description Form

University Name: University of Mosul

Faculty/Institute: College of Pharmacy

Scientific Department:

Academic or Professional Program Name: Bachelor of Pharmacy

Final Certificate Name: B.Sc. in Pharmacy

Academic System: Courses

Description Preparation Date: 07.03.2024

File Completion Date: 07.03.2024

Signature:

Head of Department Name:

Prof. Dr. Zeina Althanoon

Date: 07.03.2024

Signature:

Scientific Associate Name:

Ass. Prof. Dr. Mohannad Alqazaz

Date: 07.03.2024

The file is checked by:

Department of Quality Assurance and University Performance

Director of the Quality Assurance and University Performance Department:

Ass. Prof. Dr. Zahraa A. Hashim

Date: 25.03.2024

Signature:



Approval of the Dean

1. Program Vision

The College of Pharmacy seeks to prepare graduates in the field of pharmaceutical sciences to work in government departments and benefit from specialization in the practical and applied field

2. Program Mission

Work on preparing and graduating leading scientific and leadership competencies in the field of pharmaceutical sciences and in developing the knowledge balance in the field of scientific research in the field of pharmacy to serve the local, regional and international community, as well as training and refining students' minds scientifically and cognitively, emphasizing social and cultural values and responding to the requirements of the local market.

3. Program Objectives

1. Qualifying pharmaceutical staff and empowering them with knowledge at the practical and applied levels in the field of specialization.
2. Paying attention to the scientific outputs of preparing a generation of pharmaceutical competencies capable of achieving pharmaceutical practices in the health, academic and industrial sectors.
3. Seeking to graduate elements with the ability to creativity and innovation after their graduation and keep pace with scientific and technical development in all pharmaceutical fields.
4. Attention to the research aspect based on the use of modern laboratory equipment for the purpose of providing graduates with applied skills (drug analysis, preparation of different pharmaceutical forms, extraction of therapeutic

material from raw materials, determination of chemical and biological properties of compounds).

5. Familiarity with the applied aspects of the patient's pharmacological uses and interest in the clinical application of theoretical information.

6. Encouraging students to pay attention to modern pharmaceutical aspects such as the use of computers in the pharmaceutical aspects and the discovery of drug interactions

4. Program Accreditation

Local (National Accreditation Standards for Classification)

5. Other external influences

Scientific library, international information network, field visits to health institutions, pharmaceutical laboratories and pharmacies of the private sector.

6. Program Structure

Program Structure	Number of Courses	Credit hours	Percentage	Reviews*
Institution Requirements	11	17	9.5	
College Requirements	53	166	90	
Department Requirements				
Summer Training	Yes			
Other	Graduation project	1	0.5	

* This can include notes whether the course is basic or optional.

7. Program Description				
Year/Level	Course Code	Course Name	Credit Hours	
			Theoretical	Practical
First Year–First Semester	Phpch23_111	Analytical Chemistry	3	2
	Phcls23_112	Computer Sciences	----	2
	Phcls23_113	Human biology	2	2
	Phcls23_114	Mathematics and Biostatistics	3	----
	Phpht23_115	Medical Terminology	1	----
	Phind23_116	Principles of Pharmacy Practice	2	----
	Phcls23_117	Democracy & Human Rights	2	----

Program Description				
Year/Level	Course Code	Course Name	Credit Hours	
			Theoretical	Practical
First Year-Second Semester	Phcls23_128	Human Anatomy	1	2
	Phcls23_129	Human Histology	2	2
	Phcls23_1210	Medical Physics	2	2
	Phpch23_1211	Organic Chemistry I	3	2
	Phind23_1212	Pharmaceutical Calculation	2	2
	Phcls23_1213	Computer Sciences	----	2
	Phcls23_1214	English Language	2	----

Program Description				
Year/Level	Course Code	Course Name	Credit Hours	
			Theoretical	Practical
Second Year– First Semester	Phcls23_211	Baath's Party Crimes	2	----
	Phcls23_212	Medical Microbiology I	3	2
	Phpch23_213	Organic Chemistry II	3	2
	Phind23_214	Physical Pharmacy I	3	2
	Phpht23_215	Physiology I	3	2
	Phcls23_216	Computer Sciences	----	2
	Phcls23_217	Democracy	1	----

Program Description				
Year/Level	Course Code	Course Name	Credit Hours	
			Theoretical	Practical
Second Year- Second Semester	Phcls23_228	Medical Microbiology II	3	2
	Phpch23_229	Organic Chemistry III	2	2
	Phcog23_2210	Pharmacognosy I	3	2
	Phind23_2211	Physical Pharmacy II	3	2
	Phpht23_2212	Physiology II	3	2
	Phcls23_2213	Computer Sciences	----	2
	PhCls23_2214	Arabic Language	2	----

Program Description				
Year/Level	Course Code	Course Name	Credit Hours	
			Theoretical	Practical
Third Year- First Semester	Phcls23_311	Biochemistry I	3	2
	Phpch23_312	Inorganic Pharmaceutical Chemistry	2	2
	Phcls23_313	Pathophysiology	3	2
	Phind23_314	Pharmaceutical Technology I	3	2
	Phcog23_315	Pharmacognosy II	2	2

Program Description				
Year/Level	Course Code	Course Name	Credit Hours	
			Theoretical	Practical
Third Year- Second Semester	Phcls23_326	Biochemistry II	3	2
	Phclp23_327	Pharmacy Ethics	1	----
	Phpch23_328	Organic Pharm. Chemistry I	3	2
	Phind23_329	Pharm. Technology II	3	2
	Phcog23_3210	Pharmacognosy III	2	2
	Phpht23_3211	Pharmacology I	3	----

Program Description				
Year/Level	Course Code	Course Name	Credit Hours	
			Theoretical	Practical
Fourth Year- First Semester	Phind23_411	Biopharmaceutics	2	2
	Phclp23_412	Clinical Pharmacy I	2	2
	Phpch23_413	Organic Pharm. Chemistry II	3	2
	Phpht23_414	Pharmacology II	3	2
	Phcls23_415	Public Health	2	----
	Phcls23_416	English Language	2	----

Program Description				
Year/Level	Course Code	Course Name	Credit Hours	
			Theoretical	Practical
Fourth Year-Second Semester	Phclp23_427	Communication Skills	2	----
	Phclp23_428	Clinical Pharmacy II	2	2
	Phpht23_429	General Toxicology	2	2
	Phind23_4210	Industrial Pharmacy I	3	2
	Phpch23_4211	Organic Pharm. Chemistry III	3	2
	Phpht23_4212	Pharmacology III	2	----

Program Description				
Year/Level	Course Code	Course Name	Credit Hours	
			Theoretical	Practical
Fifth Year-First Semester	Phclp23_511	Applied Therapeutics-I	3	----
	Phcls23_512	Clinical Chemistry	3	2
	Phclp23_513	Hospital Training	----	4
	Phpht23_514	Clinical Toxicology	2	2
	Phind23_515	Industrial Pharmacy- II	3	2
	Phpch23_516	Org. Pharm. Chem. IV	2	----
	-----	Graduation project	1	----

Program Description				
Year/Level	Course Code	Course Name	Credit Hours	
			Theoretical	Practical
Fifth Year-Second Semester	Phpch23_528	Advanced Pharmaceutical Analysis	3	2
	Phclp23_529	Applied Therapeutics-II	2	----
	Phind23_5210	Dosage Form Design	2	----
	Phcls23_5211	Clinical Laboratory Training	----	4

	Phclp23_5212	Pharmacoeconomic	2	----
	Phclp23_5213	Therapeutic Drug Monitoring (TDM)	2	2
	Phind23_5214	Pharmaceutical Biotechnology	1	----

8. Expected learning outcomes of the program

Knowledge

1. Knowledge of the basics of various sciences related to the human body and diseases, such as: microbiology, physiology, organic, inorganic and life chemistry, pathophysiology, immunology, anatomy, histology and medical statistics
2. Know the characteristics of the drug, its mechanism of action and the side effects caused by its use.
3. Knowing the appropriate medication for the patient according to the pathological condition, medical history and diagnosis through clinical application
4. Know the physical and chemical properties of the compounds involved in the pharmaceutical industry and determine the appropriate pharmaceutical forms for each substance accordingly
5. Familiarity with the pharmaceutical industry and the mechanism of preparation of various pharmaceutical forms. Identify the important devices involved in pharmaceutical manufacturing.

Skills

1. Acquire skills in the mechanism of functioning of vital body systems in a healthy state
2. Acquire skills in the imbalance in the functioning of vital body systems in the pathological condition
3. Acquire skills in the mechanism of action of chemical compounds manufactured chemically or extracted from natural sources

4. Acquire clinical applied skills in the mechanism of dealing with the patient, prescribing treatment, detecting imbalances in doses and drug–pharmacological and pharmaco–nutritional interactions

5. Acquire pharmaceutical skills related to drug sources and the mechanism of comparison between types and the quality of the people for the purpose of determining the best in the local and international markets

Ethics

Developing students' abilities to share ideas.

Developing students' abilities to deal with patients and medical staff in health–care institutions.

Developing students' knowledge of research ethics.

9. Teaching and Learning Strategies

Explain the scientific material to students in detail.

Discussion and dialogue on topical vocabulary.

Theoretical, practical and practical lectures, daily assignments and discussions.

10. Evaluation methods

Exams: Mixed theoretical questions consisting of explaining the choice of the correct answer and filling in the blanks. Daily tasks and duties (classroom or classroom) Discussions Laboratory reports on applied trials or clinical cases Graduation project (for the fifth stage).

11. Faculty						
Faculty Members						
Academic Rank	Specialization		Special Requirements/Skills (if applicable)		Number of the teaching staff	
	General	Special			Staff	Lecturer
Professors	Pharmacy	Pharmaceutical Chemistry	Teaching Theoretical		1	
		Pharmacology	Teaching Theoretical		1	
Assistant Professors	Pharmacy	Pharmaceutical Chemistry	Teaching Theoretical	Teaching Practical	4	
		Biochemistry	Teaching Theoretical	Teaching Practical	2	
		Clinical Pharmacy	Teaching Theoretical	Teaching Practical	2	
		Pharmacology	Teaching Theoretical	Teaching Practical	12	
		Microbiology	Teaching Theoretical	Teaching Practical	3	
		Physiology	Teaching Theoretical	Teaching Practical	2	

		Pharmaceutics	Teaching Theoretical	Teaching Practical	1	
Lecturer	Pharmacy	Physiology	Teaching Theoretical	Teaching Practical	1	
		Pharmacology	Teaching Theoretical	Teaching Practical	8	
		Clinical Pharmacy	Teaching Theoretical	Teaching Practical	7	
		Pharmaceutics	Teaching Theoretical	Teaching Practical	6	
		Pharmaceutical Chemistry	Teaching Theoretical	Teaching Practical	2	
		Biochemistry	Teaching Theoretical	Teaching Practical	6	
		Microbiology	Teaching Theoretical	Teaching Practical	1	
		Assistant Lecturer	Pharmacy	Pharmacology	Teaching Theoretical	Teaching Practical
Physiology	Teaching Theoretical			Teaching Practical	5	
Pharmaceutical Chemistry	Teaching Theoretical			Teaching Practical	6	

		Pharmaceutics	Teaching Theoretical	Teaching Practical	12	
		Biochemistry	Teaching Theoretical	Teaching Practical	3	
		Clinical Pharmacy	Teaching Theoretical	Teaching Practical	4	
		Microbiology	Teaching Theoretical	Teaching Practical	1	
Assistant Professors	Life Science	Biochemistry	Teaching Theoretical	Teaching Practical	1	
		Microbiology	Teaching Theoretical	Teaching Practical	3	
		Physiology	Teaching Theoretical	Teaching Practical	1	
Lecturer	Life Science	Microbiology	Teaching Theoretical	Teaching Practical	2	
		Chemistry	Teaching Theoretical	Teaching Practical	6	
		Biochemistry	Teaching Theoretical	Teaching Practical	2	
Assistant Lecturer	Life Science	Chemistry	Teaching Theoretical	Teaching Practical	3	

		Microbiology	Teaching Theoretical	Teaching Practical	3	
Lecturer	Medicine	Hematology	Teaching Theoretical	Teaching Practical	1	
Assistant Lecturer	Veterinary Medicine	Biochemistry	Teaching Theoretical	Teaching Practical	1	
Lecturer	Engineering	Computer Science	Teaching Theoretical	Teaching Practical	1	
Assistant Lecturer	Engineering	Computer Science	Teaching Theoretical	Teaching Practical	1	
Assistant Lecturer	Finance and Administration	Finance	Teaching Theoretical	Teaching Practical	4	

Professional Development

Mentoring new faculty members

The presence of the Capacity Development Center (Continuing Education Center) at the university

Holding workshops and seminars (4–6 workshops and seminars annually)

Delivering seminars by the staff

Professional development of faculty members

The presence of the Capacity Development Center (Continuing Education Center) at the university

Holding workshops and seminars (4–6 workshops and seminars annually)

Delivering seminars by the staff

12. Acceptance Criterion

Central Admission

13. The most important sources of information about the program

University Central Library (Book based and Electronic Library)

College Library (Book based and Electronic Library)

Textbooks for pharmacy faculties

Websites

YouTube Movies

14. Program Development Plan

1. Using new concepts in the field of pharmaceutical sciences and using electronic devices to display information and issues
2. E-learning by sharing websites and links
3. Student seminars and debates
4. Work as a research team in the form of research groups

Program Skills Outline															
				Required program Learning outcomes											
Year/Level	Course Code	Course Name	Basic or optional	Knowledge				Skills				Ethics			
				A1	A2	A3	A4	B1	B2	B3	B4	C1	C2	C3	C4
First Year–First Semester	Phpch23_111	Analytical Chemistry	Basic				*				*				*
	Phcls23_112	Computer Sciences	Basic				*				*				*
	Phcls23_113	Human biology	Basic				*				*				*
	Phcls23_114	Mathematics and Biostatistics	Basic				*				*				*
	Phpht23_115	Medical Terminology	Basic				*				*				*
	Phind23_116	Principles of Pharmacy Practice	Basic				*				*				*
	Phcls23_117	Democracy & Human Rights	Basic				*				*				*

Program Skills Outline															
				Required program Learning outcomes											
Year/Level	Course Code	Course Name	Basic or optional	Knowledge				Skills				Ethics			
				A1	A2	A3	A4	B1	B2	B3	B4	C1	C2	C3	C4
First Year- Second Semester	Phcls23_128	Human Anatomy	Basic				*				*				*
	Phcls23_129	Human Histology	Basic				*				*				*
	Phcls23_1210	Medical Physics	Basic				*				*				*
	Phpch23_1211	Organic Chemistry I	Basic				*				*				*
	Phind23_1212	Pharmaceutical Calculation	Basic				*				*				*

	Phcls23_1213	Computer Sciences	Basic				*				*				*
	Phcls23_1214	English Language	Basic				*				*				*

Program Skills Outline															
				Required program Learning outcomes											
Year/Level	Course Code	Course Name	Basic or optional	Knowledge				Skills				Ethics			
				A1	A2	A3	A4	B1	B2	B3	B4	C1	C2	C3	C4
Second Year-First Semester	Phcls23_211	Baath's Party Crimes	Basic				*					*			
	Phcls23_212	Medical Microbiology I	Basic				*					*			
	Phpch23_213	Organic Chemistry II	Basic				*					*			
	Phind23_214	Physical Pharmacy I	Basic				*					*			
	Phpht23_215	Physiology I	Basic				*					*			

	Phcls23_216	Computer Sciences	Basic				*				*				*
	Phcls23_217	Democracy	Basic				*				*				*

Program Skills Outline															
				Required program Learning outcomes											
Year/Level	Course Code	Course Name	Basic or optional	Knowledge				Skills				Ethics			
				A1	A2	A3	A4	B1	B2	B3	B4	C1	C2	C3	C4
Second Year– Second Semester	Phcls23_228	Medical Microbiology II	Basic				*					*			*
	Phpch23_229	Organic Chemistry III	Basic				*					*			*
	Phcog23_2210	Pharmacognosy I	Basic				*					*			*
	Phind23_2211	Physical Pharmacy II	Basic				*					*			*
	Phpht23_2212	Physiology II	Basic				*					*			*

	Phcls23_221 3	Computer Sciences	Basic				*				*				*
	PhCls23_22 14	Arabic language	Basic				*				*				*

Program Skills Outline															
				Required program Learning outcomes											
Year/Level	Course Code	Course Name	Basic or optional	Knowledge				Skills				Ethics			
				A1	A2	A3	A4	B1	B2	B3	B4	C1	C2	C3	C4
Third Year-First Semester	Phcls23_311	Biochemistry I	Basic				*				*			*	
	Phpch23_312	Inorganic Pharmaceutic al Chemistry	Basic				*				*			*	
	Phcls23_313	Pathophysiology	Basic				*				*			*	
	Phind23_314	Pharmaceutic al Technology I	Basic				*				*			*	
	Phcog23_315	Pharmacogno sy II	Basic				*				*			*	

Program Skills Outline															
				Required program Learning outcomes											
Year/Level	Course Code	Course Name	Basic or optional	Knowledge				Skills				Ethics			
				A1	A2	A3	A4	B1	B2	B3	B4	C1	C2	C3	C4
Third Year-Second Semester	Phcls23_326	Biochemistry II	Basic				*					*			*
	Phclp23_327	Pharmacy Ethics	Basic				*					*			*
	Phpch23_328	Organic Pharm. Chemistry I	Basic				*					*			*
	Phind23_329	Pharm. Technology II	Basic				*					*			*

	Phcog23_3210	Pharmacognosy III	Basic				*				*				*
	Phpht23_3211	Pharmacology I	Basic				*				*				*

Program Skills Outline															
				Required program Learning outcomes											
Year/Level	Course Code	Course Name	Basic or optional	Knowledge				Skills				Ethics			
				A1	A2	A3	A4	B1	B2	B3	B4	C1	C2	C3	C4
Fourth Year– First Semester	Phind23_4 11	Biopharmaceutics	Basic				*					*			*
	Phclp23_4 12	Clinical Pharmacy I	Basic				*					*			*
	Phpch23_413	Organic Pharm.Chemistry II	Basic				*					*			*
	Phpht23_414	Pharmacology II	Basic				*					*			*

	Phcls23_4 15	Public Health	Basic				*				*				*
	Phcls23_4 16	English Language	Basic				*				*				*

Program Skills Outline															
				Required program Learning outcomes											
Year/ Level	Course Code	Course Name	Basic or optiona l	Knowledge				Skills				Ethics			
				A1	A2	A3	A4	B1	B2	B3	B4	C1	C2	C3	C4
Four h Year– Secon d Seme ster	Phclp23_427	Communication Skills	Basic				*				*				*
	Phclp23_428	Clinical Pharmacy II	Basic				*				*				*
	Phpht23_429	General Toxicology	Basic				*				*				*
	Phind23_4210	Industrial Pharmacy I	Basic				*				*				*

	Phpch23_4211	Organic Pharm. Chemistry III	Basic				*				*				*
	Phpht23_4212	Pharmacology III	Basic				*				*				*

Program Skills Outline															
				Required program Learning outcomes											
Year/Level	Course Code	Course Name	Basic or optional	Knowledge				Skills				Ethics			
				A1	A2	A3	A4	B1	B2	B3	B4	C1	C2	C3	C4
Fifth Year-First Semester	Phclp23_511	Applied Therapeutics- I	Basic				*					*			*
	Phcls23_512	Clinical Chemistry	Basic				*					*			*
	Phclp23_513	Hospital Training	Basic				*					*			*
	Phpht23_514	Clinical Toxicology	Basic				*					*			*
	Phind23_515	Industrial Pharmacy- II	Basic				*					*			*

	Phpch23_516	Org. Pharm. Chem. IV	Basic				*				*				*
	----- -	Graduation project	Basic				*				*				*

Program Skills Outline															
				Required program Learning outcomes											
Year/Level	Course Code	Course Name	Basic or optional	Knowledge				Skills				Ethics			
				A1	A2	A3	A4	B1	B2	B3	B4	C1	C2	C3	C4
Fifth Year– Second Semester	Phpch23_528	Advanced Pharmaceutical Analysis	Basic				*					*			*
	Phclp23_529	Applied Therapeutics– II	Basic				*					*			*
	Phind23_5210	Dosage Form Design	Basic				*					*			*
	Phcls23_5211	Clinical Laboratory Training	Basic				*					*			*

	Phclp23_5212	Pharmacoeconomics	Basic				*				*			*
	Phclp23_5213	Therapeutic Drug Monitoring (TDM)	Basic				*				*			*
	Phind23_5214	Pharmaceutical Biotechnology												

Please tick the boxes corresponding to the individual program learning outcomes under evaluation.

