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

2025-2024

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: 07.03.2025

File Completion Date: 15.04.2025

Signature:

Head of Department Name:

Prof. Dr. Zeina Althanoon

Date:

Signature:

Scientific Associate Name:

Ass. Prof. Dr. Mohannad Alqazaz

Date: 20.4.2025

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: 20.4.2025

Signature:

Approval of the Dean

1. Program Vision

The College of Pharmacy aims to qualify graduates specialized in pharmaceutical sciences who are capable of working in governmental institutions and applying their skills in the practical and applied aspects of the profession.

2. Program Mission

Striving to prepare and graduate distinguished scientific and leadership competencies in the field of pharmaceutical sciences, contributing to the advancement of knowledge and scientific research in service of the community at the local, regional, and international levels, with a focus on training students, refining their scientific and cognitive skills, promoting social and cultural values, and effectively responding to the needs of the local labor market.

3. Program Objectives

1. Encouraging students to engage with modern pharmaceutical trends, such as using computers in drug-related applications and identifying drug interactions.
2. Qualifying pharmaceutical professionals and enhancing their knowledge and practical skills in applied aspects within their areas of specialization.
3. Focusing on the quality of educational outcomes to prepare a qualified generation of pharmacists capable of practicing in healthcare, academic, and industrial sectors.
4. Graduating competent individuals capable of creativity and innovation, and keeping pace with scientific and technological advancements in all fields of pharmaceutical sciences.

5. Supporting and enhancing applied research skills through the use of modern laboratory equipment, contributing to the development of student competencies in drug analysis, formulation of various pharmaceutical forms, extraction of active ingredients, and determination of chemical, physical, and biological properties of compounds.
6. Deepening understanding of the practical aspects of drug therapy, with an emphasis on integrating theoretical knowledge with clinical application to improve pharmaceutical care provided to patients.
7. Encouraging students to interact with emerging pharmaceutical trends, including the use of specialized software in pharmaceutical practice and drug interaction detection.

4. Program Accreditation
Local (National Accreditation Standards for Classification) (Under revision)

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	Phpch24_111	Analytical Chemistry	3	2
	Phcls24_112	Computer Sciences	----	2
	Phcls24_113	Human biology	2	2
	Phcls24_114	Mathematics and Biostatistics	3	----
	Phpht24_115	Medical Terminology	1	----
	Phind24_116	Principles of Pharmacy Practice	2	----
	Phcls24_117	Democracy & Human Rights	2	----

Program Description				
Year/Level	**Course Code**	**Course Name**	**Credit Hours**	
			Theoretical	**Practical**
First Year- Second Semester	Phcls24_128	Human Anatomy	1	2
	Phcls24_129	Human Histology	2	2
	Phcls24_1210	Medical Physics	2	2
	Phpch24_1211	Organic Chemistry I	3	2
	Phind24_1212	Pharmaceutical Calculation	2	2
	Phcls24_1213	Computer Sciences	----	2
	Phcls24_1214	English Language	2	----
	Phcls24_1215-	Arabic Language	2	---

Program Description				
Year/Level	**Course Code**	**Course Name**	**Credit Hours**	
			Theoretical	**Practical**
Second Year– First Semester	Phcls24_211	Baath's Party Crimes	2	----
	Phcls24_212	Medical Microbiology I	3	2
	Phpch24_213	Organic Chemistry II	3	2
	Phind24_214	Physical Pharmacy I	3	2
	Phpht24_215	Physiology I	3	2
	Phcls24_216	Computer Sciences	----	2

Program Description				
Year/Level	**Course Code**	**Course Name**	**Credit Hours**	
			Theoretical	**Practical**
Second Year-Second Semester	Phcls24_228	Medical Microbiology II	3	2
	Phpch24_229	Organic Chemistry III	2	2
	Phcog24_2210	Pharmacognosy I	3	2
	Phind24_2211	Physical Pharmacy II	3	2
	Phpht24_2212	Physiology II	3	2
	Phcls24_2213	Computer Sciences	----	2
	PhCls24_2214	Arabic Language	2	----

Program Description				
Year/Level	**Course Code**	**Course Name**	**Credit Hours**	
			Theoretical	**Practical**
Third Year-First Semester	Phcls24_311	Biochemistry I	3	2
	Phpch24_312	Inorganic Pharmaceutical Chemistry	2	2
	Phcls24_313	Pathophysiology	3	2
	Phind24_314	Pharmaceutical Technology I	3	2
	Phcog24_315	Pharmacognosy II	2	2

Program Description				
Year/Level	**Course Code**	**Course Name**	**Credit Hours**	
			Theoretical	**Practical**
Third Year-Second Semester	Phcls24_326	Biochemistry II	3	2
	Phclp24_327	Pharmacy Ethics	1	----
	Phpch24_328	Organic Pharm. Chemistry I	3	2
	Phind24_329	Pharm.Technology II	3	2

	Phcog24_3210	Pharmacognosy III	2	2
	Phpht24_3211	Pharmacology I	3	----

Program Description				
Year/Level	**Course Code**	**Course Name**	**Credit Hours**	
			Theoretical	**Practical**
Fourth Year-First Semester	Phind24_411	Biopharmaceutics	2	2
	Phclp24_412	Clinical Pharmacy I	2	2
	Phpch24_413	Organic Pharm.Chemistry II	3	2
	Phpht24_414	Pharmacology II	3	2
	Phcls24_415	Public Health	2	----

Program Description				
Year/Level	**Course Code**	**Course Name**	**Credit Hours**	
			Theoretical	**Practical**
Fourth Year-Second Semester	Phclp24_427	Communication Skills	2	----
	Phclp24_428	Clinical Pharmacy II	2	2
	Phpht24_429	General Toxicology	2	2
	Phind24_4210	Industrial Pharmacy I	3	2
	Phpch24_4211	Organic Pharm. Chemistry III	3	2
	Phpht24_4212	Pharmacology III	2	----

Program Description				
Year/Level	**Course Code**	**Course Name**	**Credit Hours**	
			Theoretical	**Practical**
Fifth Year-First Semester	Phclp24_511	Applied Therapeutics-I	3	----
	Phcls24_512	Clinical Chemistry	3	2
	Phclp24_513	Hospital Training	----	4
	Phpht24_514	Clinical Toxicology	2	2

	Phind24_515	Industrial Pharmacy- II	3	2
	Phpch24_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	Phpch24_528	Advanced Pharmaceutical Analysis	3	2
	Phclp24_529	Applied Therapeutics- II	2	----
	Phind24_5210	Dosage Form Design	2	----
	Phcls24_5211	Clinical Laboratory Training	----	4
	Phclp24_5212	Pharmacoeconomic	2	----
	Phclp24_5213	Therapeutic Drug Monitoring (TDM)	2	2
	Phind24_5214	Pharmaceutical Biotechnology	1	----

8. Expected learning outcomes of the program

Knowledge

1. Understanding normal body functions and how diseases affect them.
2. Analyzing the chemical and physical properties of drugs.
3. Identifying different types of medications.
4. Selecting the appropriate pharmaceutical formulation, understanding manufacturing methods, evaluating efficacy, therapeutic value, adverse effects, stability, and accurate dosage calculations as essential components of drug development and proper treatment selection to achieve the desired therapeutic effect.
5. Understanding the concept of citizenship and human rights.

6. Understanding the concepts and principles of medical statistics and medical physics.
7. Evaluating side effects, drug toxicity, mechanisms of action, and identifying drug interactions.

Skills

1. Understanding how to work in a laboratory environment.
2. Self-directed learning.
3. Providing the highest level of healthcare (The pharmacist will be able to follow up on the patient's treatment and offer scientific and pharmaceutical advice both in the community and in medical institutions).
4. Ensuring safe and effective therapy (The pharmacist will be able to identify therapeutic errors based on the appropriateness of the treatment for the patient's condition and its compatibility with the patient's overall health).
5. Communicating with patients and using professional methods to deal with patients of different backgrounds.
6. Communicating with the medical staff in a professional manner (The pharmacist will be able to interact with healthcare workers of various levels to address errors and offer scientifically based treatment recommendations).
7. Following up with patients to ensure they receive pharmaceutical care by applying basic concepts of pharmaceutical chemistry and mechanisms of action to interpret drug interactions.
8. Competence in handling and dispensing medications (The pharmacist will be able to educate patients about various aspects of treatment, including proper storage and handling of medications).
9. Ability to prepare medications, pharmaceutical formulations, and preservation techniques (The pharmacist will be capable of preparing pharmaceutical compounds in the pharmacy and working in pharmaceutical manufacturing laboratories).

Ethics
1. Developing students' abilities to share ideas and enhancing their analytical and practical skills in conducting scientific research within ethical contexts. 2. Ethical conduct when interacting with patients, medical staff, healthcare personnel, and workers in medical institutions.

9. Teaching and Learning Strategies
Explain the scientific material to students in detail. Discussion and dialogue on topical vocabulary and brain storming. 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	5	
		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	4	
		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 + Health status check

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

Outline Program Skills																						
Required program Learning outcomes																						
Year /Level	**Course Code**	**Course Name**	**Basic or optional**	**Knowledge**							**Skills**									**Ethics**	
				A1	**A2**	**A3**	**A4**	**A5**	**A6**	**A7**	**B1**	**B2**	**B3**	**B4**	**B5**	**B6**	**B7**	**B8**	**B9**	**C1**	**C2**
First Year- First semester	Phpch24_111	Analytical Chemistry	**Basic**		*						*								*		*
	Phcls24_112	Computer Sciences	**Basic**								*	*				*					*
	Phcls24_113	Human biology	**Basic**	*							*	*			*	*				*	*
	Phcls24_114	Mathematics and Biostatistics	**Basic**						*			*				*					*
	Phpht24_115	Medical Terminology	**Basic**							*		*			*	*					*
	Phind24_116	Principles of Pharmacy Practice	**Basic**			*	*				*	*							*		*
	Phcls24_117	Democracy & Human Rights	**Basic**					*				*									*
	Phcls24_128	Human Anatomy	**Basic**	*							*	*				*					*

First Year- Second semester	Phcls24_129	Human Histology	**Basic**	*							*	*				*					*
	Phcls24_1210	Medical Physics	**Basic**						*		*	*				*					*
	Phpch24_1211	Organic Chemistry I	**Basic**		*							*							*		*
	Phind24_1212	Pharmaceutical Calculation	**Basic**			*	*				*	*							*		*
	Phcls24_1213	Computer Sciences	**Basic**								*	*				*					*
	Phcls24_1214	English Language	**Basic**												*						*
	Phcls24_1214	Arabic Language	**Basic**												*						*
				A1	**A2**	**A3**	**A4**	**A5**	**A6**	**A7**	**B1**	**B2**	**B3**	**B4**	**B5**	**B6**	**B7**	**B8**	**B9**	**C1**	**C2**
	Phcls24_211	Baath's Party Crimes	**Basic**					*													*
	Phcls24_212	Medical Microbiology I	**Basic**								*	*	*			*					*

Second Year- First semester	Phpch24_213	Organic Chemistry II	**Basic**		*						*								*		*
	Phind24_214	Physical Pharmacy I	**Basic**		*	*					*	*							*		*
	Phpht24_215	Physiology I	**Basic**	*						*		*						*		*	*
	Phcls24_216	Computer Sciences	**Basic**								*	*				*					*
Second Year- Second semester	Phcls24_228	Medical Microbiology II	**Basic**								*	*	*			*					*
	Phpch24_229	Organic Chemistry III	**Basic**		*						*	*							*		*
	Phcog24_2210	Pharmacognosy I	**Basic**		*					*	*	*	*	*						*	
	Phind24_2211	Physical Pharmacy II	**Basic**		*	*					*	*							*		*
	Phpht24_2212	Physiology II	**Basic**	*						*		*						*		*	*

	Phcls24_2213	Computer Sciences	**Basic**								*	*				*					*
	PhCls24_2214	Arabic language	**Basic**																		
				A1	**A2**	**A3**	**A4**	**A5**	**A6**	**A7**	**B1**	**B2**	**B3**	**B4**	**B5**	**B6**	**B7**	**B8**	**B9**	**C1**	**C2**
Third Year- First semester	Phcls24_311	Biochemistry I	**Basic**	*							*	*	*			*					*
	Phpch24_312	Inorganic Pharmaceutical Chemistry	**Basic**		*					*	*	*							*		*
	Phcls24_313	Pathophysiology	**Basic**	*							*	*				*					*
	Phind24_314	Pharmaceutical Technology I	**Basic**			*					*	*	*					*	*	*	*
	Phcog24_315	Pharmacognosy II	**Basic**	*						*	*	*	*	*						*	
	Phcls24_326	Biochemistry II	**Basic**	*							*	*	*			*					*

Third Year- Second semester	Phclp24_327	Pharmacy Ethics	**Basic**					*							*	*				*	*
	Phpch24_328	Organic Pharm. Chemistry I	**Basic**		*					*	*	*							*		*
	Phind24_329	Technology II	**Basic**			*					*	*	*					*	*	*	*
	Phcog24_3210	Pharmacognosy III	**Basic**		*					*	*	*	*	*						*	
	Phpht24_3211	Pharmacology I	**Basic**			*	*								*	*	*	*		*	*
				A1	**A2**	**A3**	**A4**	**A5**	**A6**	**A7**	**B1**	**B2**	**B3**	**B4**	**B5**	**B6**	**B7**	**B8**	**B9**	**C1**	**C2**
Fourth Year - First semester	Phind24_411	Biopharmaceutics	**Basic**	*		*				*	*	*		*			*				*
	Phclp24_412	Clinical Pharmacy I	**Basic**	*			*			*			*	*	*		*	*		*	*
	Phpch24_413	Organic Pharm.Chemistry II	**Basic**		*					*	*	*							*		*
	Phpht24_414	Pharmacology II	**Basic**		*	*			*		*			*	*	*	*			*	*

	Phcls24_415	Public Health	**Basic**	*			*		*				*							*	*
	Phcls24_416	English Language	**Basic**																		
Fourth Year - Second semester	Phclp24_427	Communication Skills	**Basic**					*							*	*				*	*
	Phclp24_428	Clinical Pharmacy II	**Basic**	*			*			*		*	*	*	*	*	*			*	*
	Phpht24_429	General Toxicology	**Basic**		*		*				*	*		*	*	*	*			*	*
	Phind24_4210	Industrial Pharmacy I	**Basic**		*	*			*		*	*							*		*
	Phpch24_4211-	Organic Pharm. Chemistry III	**Basic**		*					*	*	*							*		*
	Phpht24_4212	Pharmacology III	**Basic**		*	*		*		*					*	*	*	*		*	*
				A1	**A2**	**A3**	**A4**	**A5**	**A6**	**A7**	**B1**	**B2**	**B3**	**B4**	**B5**	**B6**	**B7**	**B8**	**B9**	**C1**	**C2**
	Phclp24_511	Applied Therapeutics- I	**Basic**	*			*			*			*	*			*	*		*	*
	Phcls24_512	Clinical Chemistry	**Basic**	*							*	*	*		*	*				*	*
	Phclp24_513	Hospital Training	**Basic**	*			*			*			*	*	*	*	*	*		*	*
	Phpht24_514	Clinical Toxicology	**Basic**				*			*				*			*	*			*

Fifth Year- First semester	Phind24_515	Industrial Pharmacy- II	**Basic**		*	*			*	*	*								*		*
	Phpch24_516	Org. Pharm. Chem. IV	**Basic**		*					*		*									
	----------	Graduation project	**Basic**	*								*									*
Fifth Year- Second semester	Phpch24_528	Advanced Pharmaceutical Analysis	**Basic**		*	*					*	*									*
	Phclp24_529	Applied Therapeutics- II	**Basic**	*			*			*			*	*			*	*		*	*
	Phind24_5210	Dosage Form Design	**Basic**	*	*	*					*	*					*		*		*
	Phcls24_5211	Clinical Laboratory Training	**Basic**	*							*	*	*		*	*				*	*
	Phclp24_5212	Pharmacoeconomic	**Basic**						*			*	*								*
	Phclp24_5213	Therapeutic Drug Monitoring (TDM)	**Basic**			*	*			*			*	*		*	*			*	*
	Phind24_5214	Pharmaceutical Biotechnology	**Basic**		*	*				*						*	*	*			*

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