تفاصيل البرنامج الواحد			
رمز البرنامج	Program ID	PhD Pharmacy	
اسم البرنامج	Program name		
الكلية	College Name	Pharmacy	
القسم	Department Name	Pharmacy	
الموقع الالكتروني للبرنامج	Program URL	https://drive.google.com/file	
اسم الدرجة	Degree Name	PhD	
مستوى الدراسة	Study Level	PhD	
نوع الكورس	Course Intensity	Full-time	
طبيعة الدراسة	Study Mode	On campus	
	MBA Program Type	-	
تفاصيل البرنامج			
الموضوع العام	Broad Subject Area	Pharmacology, Pharmaceutics, Pharmaceutical chemistry, clinical pharmacy, clinical laboratory sciences and Pharmacognosy	
الموضوع الرئيسي	Main Subject:	Pharmacy	
الموضوع اذا لم يكن مذكور	Custom Subject		
الاختصاص	Specialization	Pharmacy	
وصف البرنامج	Program Description	**Program Overview** The Doctor of Philosophy (PhD) in Pharmacy is an advanced research-oriented program designed to provide comprehensive scientific knowledge and high-level research skills in pharmaceutical sciences, drug discovery, therapeutic innovation, and advanced analytical techniques. This program equips graduates with the expertise needed to excel in academia, the pharmaceutical industry, clinical research,	

and regulatory environments.

Year One: Advanced Core Studies

First Semester

First Semester

1. Advanced Pharmacology II, cover central nervous system pharmacology, cardiovascular and renal drugs, atherosclerosis, haemostasis and thrombosis, haematopoietic agents, immunosuppressants, anti-inflammatory drugs, dermatologic and ophthalmic agents, respiratory system drugs, gastrointestinal drugs, and treatments for kidney and urinary disorders.

2. Advanced Therapeutics IV addresses pharmacotherapy in renal, hepatic, electrolyte, acid-base, immunologic, hematologic, psychiatric, musculoskeletal, gynecologic, and obstetric disorders, including drug use in pregnancy and lactation.

3. Bio-organic Mechanisms I introduces organic structure and bonding, stereochemistry, spectroscopy (IR, UV-Vis), organic reactivity, catalysis, acid-base chemistry, and nucleophilic substitution.

4. Pharmaceutical Biotechnology focuses on therapeutic proteins and peptides, stability, PK/PD, monoclonal antibodies, vaccines, oligonucleotides, thrombolytic agents, and clinical/non-clinical development.

5. Advanced Clinical Biochemistry II Explores advanced clinical interpretation of

body fluids, pharmacogenomics in clinical chemistry, omics-based diagnostics, biochemistry of bone and mineral disorders, biochemistry in extreme ages, emerging technologies in clinical chemistry laboratories, biochemical and molecular bases of antimicrobial resistance, tumor biomarkers in clinical diagnostics and therapy, and multi-omics integration and AI in precision laboratory medicine

6. Separation Techniques (Practical) provides training in chromatography, electrophoresis, ultracentrifugation, HPLC, and extraction/identification of natural and synthetic products.

7. Research Methodology develops skills in literature review, study design, sampling, data collection, scientific writing, journal selection, reference management, and plagiarism prevention.

Year Two: Specialization and Research

The second year enables students to specialize in areas of interest and participate in research activities. Key courses include:

First Year – Second Semester: Specialization and Research Application

In the second semester, students deepen their specialization through focused electives and practical applications.

1. Advanced Pharmacology III (Elective) covers drugs for blood disorders,

	inflammation, gout, endocrine diseases, asthma, cannabinoid receptor pharmacology, anti-obesity drugs, novel anti-inflammatory agents, diabetes/metabolic syndrome drugs, anti-aging pharmacology, and gene therapy. **2. Advanced Pharmaceutical Chemistry (Elective)** includes drug design (lead discovery, target optimization), antibiotics, anticancer drugs, narcotic analgesics, and NSAIDs. **3. Advanced Therapeutics V (Elective)** examines endocrine, neurologic, cardiovascular, and oncologic pharmacotherapy, integrating pharmacy care practice and rational drug use. **4. Advanced Pathophysiology III (Elective)** addresses inflammation, neoplasia, environmental and nutritional pathology, immunopathophysiology, and organ-specific pathophysiology (heart, liver, endocrine, head & neck, soft tissues). **5. Chemistry of Natural Products (Elective)** explores biosynthesis of plant secondary metabolites, acetate/shikimate/mevalonate pathways, mixed biosynthesis, and bioactive compounds with antihepatotoxic, hypoglycemic, antibacterial, and antiprotozoal properties. **6. Advanced Biopharmaceutics II (Elective)** focuses on physiological, physicochemical, and formulation factors affecting drug performance; IVIVC; bioavailability/bioequivalence; pharmacokinetic modeling; dosage adjustment; and pharmacogenomics.		

8. Bio-organic Mechanisms II(Elective) covers phosphate transfer, α-carbon reactions, electrophilic and redox reactions, organic chemistry of vitamins, NMR and mass spectrometry.

9. Special Problem (Practical) provides hospital-based clinical observations and therapeutic application under supervision.

10. Selected Topics allow exploration of current literature in pharmacology, toxicology, clinical pharmacy, clinical laboratory sciences, pharmaceutics, and pharmacognosy.

11. Advanced Pharmacokinetics and Drug Metabolism II (Elective) , addressing clinical PK in special populations, effects of organ impairment, advanced elimination pathways, enterohepatic recirculation, therapeutic drug monitoring, and integration into clinical trial design.

14. Seminar sessions focus on the presentation and defense of research findings.

15. English for Scientific Research refines advanced academic writing, citation practices, argument structuring, and proposal development.

Research Component

In the later stages of the PhD in Pharmacy program, students engage in an extensive and highly specialized research component that forms the cornerstone of their doctoral training. Under the guidance of a primary

faculty supervisor and, where appropriate, a multidisciplinary advisory committee, each candidate develops and conducts an original research project that contributes novel findings to the pharmaceutical sciences.

The research component encompasses advanced practical work, participation in seminars, and the application of sophisticated research methodologies acquired during the coursework phase. Students are expected to demonstrate mastery of experimental design, advanced analytical techniques, and critical interpretation of scientific data.

Program Outcomes of the PhD in Pharmacy

1. Knowledge
Graduates will be able to:

- Demonstrate comprehensive and authoritative knowledge of the principles, mechanisms, and applications of pharmaceutical sciences, including pharmacology, medicinal chemistry, pharmaceutics, biotechnology, and pharmacokinetics.
- Critically analyze and apply advanced

concepts in drug discovery, development, delivery, safety evaluation, and regulatory compliance.
- Synthesize and integrate knowledge from multiple scientific disciplines to address complex challenges in pharmaceutical research and clinical application.

2. Cognitive Skills
Graduates will be able to:

- Critically evaluate, interpret, and synthesize findings from primary scientific literature across diverse areas of pharmacy and related biomedical sciences.
- Formulate innovative research questions and hypotheses, and design methodologically sound experiments to address them.
- Apply advanced data analysis, modeling, and interpretation techniques to generate meaningful conclusions with translational and industrial relevance.
- Develop novel approaches, technologies, or therapeutic strategies that contribute to the advancement of the pharmaceutical sciences.

3. Interpersonal Skills and Responsibility
Graduates will be able to:

- Demonstrate a high level of professional, ethical, and social responsibility in research, teaching, and professional practice, including adherence to the highest standards of research integrity and safety.
- Collaborate effectively in

multidisciplinary teams across academic, clinical, industrial, and regulatory environments, often taking leadership roles.
- Mentor junior researchers and contribute to the development of the next generation of scientists.

4. Communication, Information Technology, and Numerical Skills
Graduates will be able to:

- Communicate complex scientific concepts, experimental results, and theoretical perspectives clearly and persuasively through high-impact publications, conference presentations, and policy or industry reports.
- Employ advanced information technology tools for computational modeling, molecular simulation, literature mining, big-data analysis, and scientific documentation.
- Apply advanced statistical and computational methods for data interpretation, including bioinformatics and systems pharmacology approaches.

5. Research and Innovation Skills
Graduates will be able to:

- Independently conceive, execute, and complete original research that contributes new knowledge to the pharmaceutical sciences.
- Translate laboratory findings into clinical or industrial applications, bridging the gap between bench research and patient or product outcomes.

	• Secure competitive funding for research through grant writing and proposal development. **6. Psychomotor and Technical Skills** Graduates will be able to: • Perform complex and specialized laboratory and analytical procedures with high precision, including advanced chromatographic, spectroscopic, biotechnological, and pharmacological techniques. • Develop, validate, and optimize experimental methods for both basic and applied pharmaceutical research.		
	/https://uomosul.edu.iq/en	- University Official Website	موقع الجامعة الالكتروني
	pgaffairs.ph@uomosul.edu.iq	Get more details (emai	بريد الكتروني للاستفسار
	1. What are the admission requirements for the PhD program in Pharmacy? 2. What are the core and elective courses offered in the program, and how do they prepare students for their future careers? 3. What research opportunities are available to students, and how can they get involved in ongoing projects or initiate their research? 4. What career support services are provided to help students transition from the program to professional roles in the pharmacy field? 5. What types of workshops are available for PhD students in Pharmacy, and how do they enhance their learning experience?	Question 1/5	خمسة اسئلة عن البرنامج
	1. Generally, applicants require a Bachelor's degree in Pharmacy, or a related biomedical field, along with a	Answer ٥/١	خمسة اجوبة عن البرنامج

good academic standing. Admission is based on a competitive written examination covering core pharmacy disciplines, including pharmacology, clinical pharmacy, pharmaceutics, and toxicology.

2. **Core Courses** in the program include:

- Advanced Pharmacology II & III
- Advanced Therapeutics IV & V
- Bio-organic Mechanisms I & II
- Pharmaceutical Biotechnology
- Advanced Clinical Biochemistry II
- Advanced Pathophysiology III
- Advanced Biopharmaceutics II
- Advanced Pharmaceutical Chemistry
- Separation Techniques (Practical)
- Advanced Pharmacokinetics and Drug Metabolism II
- Chemistry of Natural Products
- Research Methodology
- Special Problem (Practical)
- Selected Topics
- Seminar and English for Scientific Research

Elective courses allow students to focus on niche areas, including specific advanced pharmacology topics, medicinal chemistry, biopharmaceutics, or natural product chemistry.

3. These courses integrate theoretical knowledge with practical laboratory and analytical skills, preparing graduates to:

- Lead advanced pharmaceutical research projects.
- Design and optimize therapeutic agents.
- Translate laboratory discoveries into

	clinical or industrial applications. • Navigate regulatory and quality assurance frameworks. The PhD program's research component is extensive, culminating in an independent doctoral dissertation. Students can: • Join ongoing faculty-led projects in areas such as drug discovery, pharmacology, pharmaceutics, biotechnology, and clinical pharmacy. • Propose and develop their own research under faculty supervision, ensuring it contributes original knowledge to the field. • Access specialized laboratories, analytical facilities, and clinical training sites for applied research. • Engage in interdisciplinary collaborations within the university or with external research institutions. **4.** While the program's primary focus is academic and research excellence, most institutions offering the PhD in Pharmacy provide career transition support such as: • Guidance from faculty mentors on academic, industrial, and regulatory career paths. • Opportunities to present research at national and international conferences to build professional networks. • Support in publishing research findings in peer-reviewed journals, enhancing career prospects. • Training in grant writing, research funding applications, and intellectual property management.		

	• Access to university career centers for job placement assistance, CV preparation, and interview coaching. **5.** PhD students benefit from specialized workshops designed to complement their coursework and research, such as: • **Advanced Research Methodology and Data Analysis** – refining experimental design and statistical skills. • **Scientific Writing and Publication Ethics** – improving thesis writing, journal article preparation, and adherence to ethical publishing standards. • **Laboratory Safety and Good Laboratory Practices (GLP)** – ensuring compliance with safety regulations. • **Analytical and Instrumentation Techniques** – hands-on training with advanced equipment such as HPLC, NMR, and mass spectrometry. • **Grant Proposal Development** – learning to prepare competitive funding applications. • **Career Development and Professional Skills** – including presentation skills, networking, and leadership training.		
	1st semester: 13 units - 2nd semester: 17 units -	Duration Unit:	الوحدات
	Years -	Duration Type	نوع البرنامج
	September the 1st	Start Month-	بداية البرنامج (شهر)
	يوم:	Application Deadline	موعد انتهاء التقديم للبرنامج
	شهر		

	سنة		
	Iraqi Dinar (IQD)	Fees Currency :	العملة
	r Iraqi students(٠-٤٥٠٠٠٠٠) IQD Per year : For international Students(٠-٤٥٠٠٠٠٠) IQD Per year	Price Information	معلومات الاجور
			Entry Requirementsمتطلبات الدخول للكورس
	Admission to the PhD in Pharmacy program is based on a **general competitive written examination** that evaluates applicants' foundational knowledge across core areas of pharmaceutical and biomedical sciences. The exam is designed to ensure that candidates possess the academic background necessary for success. It typically includes content from the following subjects: • **Pharmacology and Toxicology** • **Advanced Medical Physiology and Pathophysiology** • **Clinical Biochemistry** The exam may consist of **multiple-choice questions (MCQs)**, **short-answer**, and/or **essay-type questions**, with emphasis on critical thinking, problem-solving, and application of scientific knowledge.	Exam Type: Paper-based Exam	نوع الامتحان
	Graduation Certificate Nomination Letter from the applicants' Job	Entry Requirements (Other) :	متطلبات اخرى
	(٠) IQD Per Year	Min Total Tuition Fees (Domestic) :	الحد الأدنى لإجمالي الرسوم الدراسية (المحلية):
	(٤٥٠٠٠٠٠) IQD Per Year	Max Total Tuition Fees (Domestic) :	الحد الأقصى لإجمالي الرسوم (المحلية):
	(٠)IQD Per Year	Min Total Tuition Fees (Domestic, In State) :	الحد الأدنى لإجمالي الرسوم الدراسية (المحلية، داخل الولاية):
	(٤٥٠٠٠٠٠) IQD Per Year	Max Total Tuition Fees (Domestic, In Sta	الحد الأقصى لإجمالي الرسوم الدراس (المحلية، داخل الولاية):

الحد الأدنى لإجمالي الرسوم الدراسية (المحلية، خارج الولاية)	Min Total Tuition Fees (Domestic, Out of State)	(٠) IQD Per Year	
الحد الأقصى لإجمالي الرسوم الدراسية (المحلية، خارج الولاية):	Max Total Tuition Fees (Domestic, Out of State) :	(٤٥٠٠٠٠٠) IQD Per Year	
الحد الأدنى لإجمالي الرسوم الدراسية (الدولي):	Min Total Tuition Fees (International) :	(٠) IQD Per year	
الحد الأقصى لإجمالي الرسوم الدراسية (الدولي):	Max Total Tuition Fees (International) :	(٤٠٠٠٠٠٠) IQD Per year	
الرسوم الدراسية - العملة :	Tuition Fee - Currency	Iraqi Dinar (IQD)	
هل يتعين على المرشحين تقديم مراجع أو خطابات توصية للقبول؟	Are candidates require to submit references or letter(s) of recommendation for acceptance?	NO	
هل يتعين على المرشحين تقديم مقال (مقالات) للقبول (بروبوزال	Are candidates required to submit an essay (s) for acceptanc	NO	
الحد الأدنى من الخبرة المهنية (بالسنو	Minimum Professiona Experience (in years) :		
Financial Aidالدعم المالي			
هل هناك منحة دراسية أو مساعدات مالية ترعاها الكلية او القسم؟	Is there a school sponsored scholarship financial aid?	NO	
ميزانية الكلية او القسم السنوية لجميع الدراسية:	Annual school budget scholarships:	Not applicable	
العملة	Currency:	Not applicable	
معلومات المنحة	Scholarship Informatic	Not applicable	
Program Statisticsاحصائيات البرنامج			
الطلاب لكل فصل :	Students per Class :		
معدل عمر الطلبة	Average age (in years) :		
متوسط سنوات الخبرة في العمل على المستوى الإداري:	Average years of work experience at managerial level :		
نسبة الطلبة الاجانب	Percentage of international		

		students :	
		Percentage of women :	نسبة الاناث
	50 and more	Average GMAT score for Your cohort :	معدل درجات التخرج
		Average salary after graduation :	متوسط الراتب بعد التخرج :
	Variable	Percent employment after graduation :	نسبة التوظيف بعد التخرج:
	-	Program accreditations :	اعتمادات البرنامج (الاعتمادية)
	2	Average work experience (in years) :	متوسط الخبرة العملية (بالسنوات):
	i	Number of nationalities in current cohort :	عدد الجنسيات في وجبة التخرج الحالي :
Campus Details			**تفاصيل الكلية او القسم**
	كلية الصيدلة / فرع الأدوية و السموم	Institution Profile Name Display :	اسم الكلية او القسم
	2025	Foundation Year :	سنة التأسيس
		Current Logo :	شعار الكلية او القسم

علما ان هذه المعلومات لكل برنامج اكاديمي في الجامعة

1st semester

Subject	Unit
Advanced Pharmacology II	2
Advanced Therapeutics IV	2
Bio-organic Mechanisms I	2
Pharmaceutical Biotechnology	2
Advanced Clinical Biochemistry II	2
Separation Techniques (practical, chemical and molecular techniques)	1
Research Methodology	2

Mark	Grade
90-100	Excellent
80-89	Very good
70-79	Good
60-69	Fair
50-59	Pass
0-49	Fail

2nd semester

Subject	Unit
Advanced Pharmacology III/ Advanced pharmaceutical chemistry	3
Advanced Therapeutics V (مادة اختيارية)	3
Advanced Pathophysiology III/ Chemistry of natural products	2
Advanced Biopharmaceutics II (مادة اختيارية)	2
Bio-organic Mechanisms II (مادة اختيارية)	2
Selected topics	2
Special Problem	2
Advanced Pharmacokinetics and Drug Metabolism II (مادة اختيارية)	1
Seminar	Pass
English	Pass

Thesis: Units: 10