

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

Academic program description forms for colleges and institutes

University: Basrah

College/Institute: Pharmacy

Academic Department: Pharmaceutical Chemistry

File filling date: 2021-2022

Signature



Department Head:

Dr. Munther Abd Al-Jaleel

Signature



Vice Dean for Scientific Affairs:

Dr. Modher najim abdullah

File checked by:

Quality Assurance and University Performance Division

Director of the Quality Assurance and University Performance Division:

Date:

Signature:



Dr. Suha Shyal Abd AL-Hassan



Dean's endorsement
Dr. Falah Hassan Shari

Description of the academic program

This academic program description provides a brief summary of the most important characteristics of the program and the learning outcomes expected of the student to achieve, demonstrating whether he has made maximum use of the available opportunities. It is accompanied by a description of each course within the program.

maximum use of the available opportunities. It is accompanied by a description of each course within the program.

1. Educational institution	College of Pharmacy
2. Academic Department/Center	Pharmaceutical Chemistry
3. Academic or professional program name	Sciences in Pharmacy
4. Final certificate name	Bachelor's
5. Academic system: annual / courses / other	Two semesters in each academic year
6. Accreditation Program Used:	Description of the academic program
7. Other external influences	Practical part and discussion panels
8. Date of preparation of the description	2021-2022
9. Academic Program Objectives: Graduating qualified pharmacists capable of preparing, characterizing and studying the chemical and physical properties and the biological effectiveness of drugs	
10. Required program outcomes and methods of teaching, learning and assessment:	
A. Learning Goals: <ol style="list-style-type: none">1. Defining methods for preparing medicinal chemical compounds2. Definition of methods for characterizing chemical compounds by chemical and spectroscopic methods.3. Introducing the methods of characterization and volumetric, quantitative and spectral separation4. Knowledge of the structure, side effects, and the mechanism of drug action	

5. Study of chemical and physical properties of drugs and medicines
6. Study of changing the functional groups of compounds in order to increase drug efficacy

B. Skills objectives of the program

1. Acquisition of pharmaceutical preparation and manufacturing skills
2. Acquisition of skills to know the effect of some types of additives on the properties and efficacy of medicines
3. Acquisition of skills to increase the stability of medicinal forms outside or inside the body
4. Acquisition of drug characterization skills and drug side effects

Teaching and learning methods

1. Theoretical lectures
2. Training laboratories
3. Practical research
4. Seminars

Evaluation methods

1. Mid-term and final exams
2. Daily written and oral exams
3. Laboratory reports
4. Graduation projects

C. Moral and value goals

1. Enhancing students' ability to think and analyze logically to solve manufacturing problems
2. Encouraging critical reading of relevant research
3. Instilling the values of scientific integrity in the student and how to deal with the patient
4. Enhancing the student's self-confidence through the practical side and the preparation of some medicinal compounds

Teaching and learning methods

Assigning the students home works

Visiting scientific websites and downloading solid and recent research

Assigning the student to prepare seminars and discussions

Evaluation methods

Weekly reports

Oral discussions

Practical and theoretical exams

D. Transferred general and qualification skills (other skills related to employability and personal development).

1. Graduation of a pharmacist with skills in the methods of dealing with chemicals
2. Develop pharmacist skills in preparing medicines
3. Training the pharmacist on how to know the expiry date of the medicines
4. Pharmacist training on how to measure the amount of active substances and additives in medicines

Teaching and learning methods

Conducting practical experiments, using modern devices for preparation and characterization, using modern projectors, and downloading scientific films from the information network.

Evaluation methods

Oral discussions, written exams and reports

11. Program structure

Educational level	Course code	Course name	Credit hours	
			Theoretical	Practical
First	-	Analytical chemistry	3	8
		Organic Chemistry I	3	8
Second	-	Organic Chemistry II	3	8
		Organic Chemistry III	2	8
Third	-	Inorganic Pharmaceutical Chemistry	2	8
		Organic Pharmaceutical Chemistry I	3	8
Fourth	-	Organic Pharmaceutical Chemistry II	3	8
		Organic Pharmaceutical Chemistry	3	8
Fifth	-	Organic Pharmaceutical Chemistry IV	2	8
		Advanced Pharmaceutical Analysis	3	8

Planning for personal development

Develop scientific and objective thinking

Personal and professional development

Develop communication skills

Scientific discussions

12. Admission standard (setting regulations related to joining the college or institute).

Central Admission, Ministry of Higher Education and Scientific Research for each of the following:

High school graduates (Science branch)

The first from the medical institute

The first in the first stage in the College of Sciences

The first on the first stage of the Medical Institute

13. The most important sources of information about the program

Scientific books and international research

Text book of organic pharmaceutical and medicinal chemistry, by Wilson and Gisvold

Inorganic pharmaceutical chemistry, by Block

Analytical chemistry by Scogge

Organic chemistry by Morison

Curriculum skills chart

Please check the boxes corresponding to the individual learning outcomes from the program being evaluated

Learning outcomes required from the program

Year/level	Course Code	Course Name	Essential or optional	Learning objectives				Skills objectives of the program				Moral and value goals				Transferred general and qualification skills (other skills related to employability and personal development).			
				A1	A2	A3	A4	B1	B2	B3	B4	C1	C2	C3	C4	D1	D2	D3	D4
First	-	Analytical chemistry	Essential	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
	-	Organic Chemistry I	Essential	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	

Second	-	Organic Chemistry II	Essential	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*		
	-	Organic Chemistry III	Essential	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
Third	-	Inorganic Pharmaceutical Chemistry	Essential	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
	-	Organic Pharmaceutical Chemistry I	Essential	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
Fourth	-	Organic Pharmaceutical Chemistry II	Essential	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	

	-	Organic Pharmaceutical Chemistry III	Essential	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
Fifth	-	Organic Pharmaceutical Chemistry IV	Essential	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
	-	Advanced Pharmaceutical Analysis	Essential	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	

Course description form

Course description

This course description provides a brief summary of the most important characteristics of the course and the learning outcomes expected of the student, demonstrating whether he has made the most of the available learning opportunities. It must be linked to the description of the program

1. Educational institution	College of Pharmacy
2. Academic Department/Center	Pharmaceutical Chemistry
3. Course name / code	Analytical Chemistry, Organic Chemistry, Inorganic Pharmaceutical Chemistry, Organic Pharmaceutical Chemistry, and Advanced Pharmaceutical Analytics
4. Available forms of attendance	Theoretical lectures, laboratory experiments and seminars
5. Semester/Year	Five study stages divided into two semesters, and each semester has an academic subject
6. Number of academic hours (total)	99 hours divided into theoretical and practical lectures
7. The date this description was prepared	2021-2022
8. Course objectives	Providing the private and governmental sectors with qualified pharmacists who have medical skills in the field of pharmaceutical industry from organic compounds and the method of charactering prepared

medicines and calculating their concentration and expiry date as well as knowledge of the characteristics of pharmaceutical compounds, as well as conducting research in the field of providing services, expertise and pharmaceutical consultancy and attending conferences to enrich scientific research and acquire skills and expertise necessary to develop this academic field

10. Course outcomes and methods of teaching, learning and assessment

A. Learning Goals

1. Defining methods for preparing medicinal chemical compounds
2. Definition of methods for characterizing chemical compounds by chemical and spectroscopic methods.
3. Introducing the methods of characterization and volumetric, quantitative and spectral separation
4. Knowledge of the structure, side effects, and the mechanism of drug action
5. Study of chemical and physical properties of drugs and medicines
6. Study of changing the functional groups of compounds in order to increase drug efficacy

E. Skills objectives of the program

1. Acquisition of pharmaceutical preparation and manufacturing skills
2. Acquisition of skills to know the effect of some types of additives on the properties and efficacy of medicines
3. Acquisition of skills to increase the stability of medicinal forms outside or inside the body

Acquisition of drug characterization skills and drug side effects

Teaching and learning methods

Conducting practical experiments, using modern devices for preparation and diagnosis, using modern projectors, and downloading scientific films from the information network.

Evaluation Methods

Oral discussions, written exams and reports

C. Moral and value goals

1. Enhancing students' ability to think and analyze logically to solve manufacturing problems
2. Encouraging critical reading of relevant research
3. Instilling the values of scientific integrity in the student and how to deal with the patient
4. Enhancing the student's self-confidence through the practical side and the preparation of some medicinal compounds

Teaching and learning methods

Theoretical lectures, laboratory experiments, seminars and discussions

Evaluation methods

Quarterly exam, short exams, and measurement of unknown samples by laboratory methods

D. Transferred general and qualification skills (other skills related to employability and personal development).

1. Building the professional personality of the pharmacist to be able to deal with pharmaceutical chemicals
2. Develop his professional abilities to ensure the love and creativity of the profession
3. Building the capacity of the pharmacist to professionally deal with the patient and the treating physician

4. Course structure

Weeks	Hours	Required learning outcomes	Unit name/topic	Teaching method	Evaluation method
15 weeks	3 theoretical and 2 practical	Evaluation of drugs qualitatively and quantitatively	Analytical chemistry	Lectures and laboratory experiments	Theoretical and practical exam
15 weeks	3 theoretical and 2 practical	Basics of organic chemistry	Organic Chemistry	Lectures and laboratory experiments	Theoretical and practical exam
15 weeks	3 theoretical and 2 practical	The mechanisms of organic reactions	Organic Chemistry	Lectures and laboratory experiments	Theoretical and practical exam
15 weeks	2 theoretical and 2 practical	Pharmaceutical cyclic compounds	Organic Chemistry	Lectures and laboratory experiments	Theoretical and practical exam
15 weeks	3 theoretical and 2 practical	Preparation of inorganic medicines	Inorganic Pharmaceutical Chemistry	Lectures and laboratory experiments	Theoretical and practical exam

15 weeks	3 theoretical and 2 practical	Study of drug properties	Organic Pharmaceutical Chemistry	Lectures and laboratory experiments	Theoretical and practical exam
15 weeks	3 theoretical and 2 practical	Preparation and characterization of medicines	Organic Pharmaceutical Chemistry	Lectures and laboratory experiments	Theoretical and practical exam
15 weeks	3 theoretical and 2 practical	Preparation and characterization of medicines	Organic Pharmaceutical Chemistry	Lectures and laboratory experiments	Theoretical and practical exam
15 weeks	3 theoretical	Preparation of balanced hydrolysis drugs	Organic Pharmaceutical Chemistry	Lectures	Theoretical exam
15 weeks	3 theoretical and 2 practical	Standardization of drugs by spectroscopic methods	Organic Pharmaceutical Chemistry	Lectures and laboratory experiments	Theoretical and practical exam
15 weeks	3 theoretical and 2 practical		Advanced Pharmaceutical Analysis	Lectures and laboratory experiments	Theoretical and practical exam
1. Infrastructure					
1. Required text books			Text book of organic pharmaceutical and medicinal chemistry, by Wilson and Gisvold		

	<p>Inorganic pharmaceutical chemistry, by Block</p> <p>Analytical chemistry by Scogge</p> <p>Organic chemistry by Morison</p>
2. Main references (sources)	<p>British" pharmacopoeia"</p> <p>United "State "Pharmacopoeias</p> <p>"Pharmacopoeias European</p>
A. Recommended books and references (scientific journals, reports,)	<p>J. Chem. Soc.</p> <p>J. Amer. Chem. Soc.</p> <p>J. Molecules</p> <p>Eur. J. Chem.</p>
B. Electronic references, websites	<p>http://www.sciencedirect.com</p> <p>https://scholar.google.com</p>
13. Course development plan	
Review the curricula completion rates after the end of each semester and assess the extent to which the student has benefited from the academic materials in the practical aspect	