مفردات مناهج كلية الصيدلة - جامعة البصرة

للعام الدراسي 2024 -2025

36	Credits	المرحلة الاولى					
الفصل الدراسي الثاني				الفصل الدراسي الاول			
الوحدات		اسم المادة	ت	الوحدات		اسم المادة	ت
عملي	نظري			عملي	نظري		
1	2	Histology	1	1	2	Human Biology	1
1	2	Medical Physics	2	1	3	Analytical chemistry	2
1	3	Organic Chemistry I	3	0	2	Principles of pharmacy practice	3
1	1	Human Anatomy	4	0	3	Mathematics & Biostatistics	4
1	2	Pharmaceutical calculations	5	0	1	Medical terminology	5
1	0	Computer sciences	6	1	0	Computer sciences	6
0	2	Arabic language##	7	0	2	Democracy & Human rights*	7
			8	0	2	English language****	8

41	Credits	المرحلة الثانية					
الفصل الدراسي الثاني				الفصل الدراسي الاول			
الوحدات		اسم المادة	ت	الوحدات		اسم المادة	ت
عملي	نظري			عملي	نظري		
1	3	Pharmacognosy I	1	1	3	Medical Microbiology I	1
1	2	Organic Chemistry III	2	1	3	Organic Chemistry II	2
1	3	Medical microbiology II	3	1	3	Physiology I	3
1	3	Physiology II	4	1	3	Physical pharmacy I	4
1	3	Physical pharmacy II	5	1	0	Computer sciences	5
1	0	Computer sciences	6	0	2	Ba'ath Crimes**	6
0	2	Arabic language	7				7
			8				8

37	Credits	المرحلة الثالثة					
الفصل الدراسي الثاني				الفصل الدراسي الاول			
الوحدات		اسم المادة	ت	الوحدات		اسم المادة	ت
عملي	نظري			عملي	نظري		
1	3	Organic Pharmaceutical Chemistry I	1	1	2	InOrganic Pharmaceutical Chemistry I	1
1	3	Pharmaceutical technology II	2	1	3	Pharmaceutical technology I	2
0	3	Pharmacology I	3	1	2	Pharmacognosy II	3
1	2	Pharmacognosy III	4	1	3	Pathophysiology	4
1	3	Biochemistry II	5	1	3	Biochemistry I	5
0	1	Pharmaceutical Ethics	6				6
			7				7
			8				8

مفردات مناهج كلية الصيدلة - جامعة البصرة
للعام الدراسي 2024 -2025

المرحلة الرابعه							
34	Credits						
الفصل الدراسي الاول				الفصل الدراسي الثاني			
ت	اسم المادة	الوحدات		ت	اسم المادة	الوحدات	
		نظري	عملي			نظري	عملي
1	Pharmacology II	3	1	1	Industrial Pharmacy I	3	1
2	Public Health	2	0	2	Pharmacology III	2	0
3	Biopharmacy	2	1	3	Toxicology	2	1
4	Clinical Pharmacy I	2	1	4	Clinical Pharmacy II	2	1
5	Organic Pharmaceutical Chemistry II	3	1	5	Organic Pharmaceutical Chemistry III	3	1
6				6	Communication skills	2	0
7				7			
8				8			

المرحلة الخامسة							
36	Credits						
الفصل الدراسي الاول				الفصل الدراسي الثاني			
ت	اسم المادة	الوحدات		ت	اسم المادة	الوحدات	
		نظري	عملي			نظري	عملي
1	Therapeutics I	3	0	1	TDM	2	1
2	Clinical Chemistry	3	1	2	Pharmaco-economy	2	0
3	Organic Pharmaceutical Chemistry IV	2	0	3	Therapeutics II	2	0
4	Industrial Pharmacy II	3	1	4	Dosage Forms design	2	0
5	Lab Training	0	2	5	Advanced Pharmaceutical analysis	3	1
6	Clinical Toxicology	2	1	6	Pharmaceutical Bio-technology	1	0
7	Graduation project	0	1	7	Hospital Training	0	2
8				8	Graduation project***	0	1

مجموع الوحدات الدراسية لخمس سنوات	184

ملاحظات:

-1 كل وحدة واحدة من الجزء العملي يعادل ساعتين نظريتين في الجدول الدروس الاسبوعي . حسب المادة 15 -ثالثا من التعليمات الامتحانية رقم 134 لسنة 2000

-2 حسب كتاب وزارة التعليم العالي والبحث العلمي رقم ت م 3 /7588 في 19/10/2023 *

-3 حسب كتاب وزارة التعليم العالي والبحث العلمي رقم ت م 3 /7588 في 19/10/2023 **

-4 حسب كتاب وزارة التعليم العالي والبحث العلمي رقم ت م 3 /7937 في 26/10/2023 ****

-5 حسب كتاب وزارة التعليم العالي والبحث العلمي رقم ج ع /م ه /2976 في 10/7/2024 ***

-6 حسب كتاب وزارة التعليم العالي والبحث العلمي رقم ت م 3 /11009 في 9/10/2024 ##

جمهورية العراق
وزارة التعليم العالي والبحث العلمي
دائرة الدراسات والتخطيط والمتابعة
قسم الدراسات والتخطيط

REPUBLIC OF IRAQ
MINISTRY OF HIGHER EDUCATION
AND SCIENTIFIC RESEARCH
DIES , PLANNING & FOLLOW UP DIRECTORATE
STUDIES & PLANNING DEPARTMENT

العدد : ت م ٣/ ٧٩٢٧
التاريخ : ٢٦/ ١٠/ ٢٠٢٣

3004983

رئاسة جامعة البصرة
بريد الوزارة الوارد
العدد
التاريخ

جامعة البصرة

(القرآن مهجنا)
(عاجل وبالبريد الالكتروني)

دائرة الدراسات والتخطيط والمتابعة

الجامعات كافة/السيد رئيس الجامعة المحترم
م/ الوحدات الدراسية للمواد الأساسية

السلام عليكم ورحمة الله وبركاته...

لغرض تنظيم آليات تدريس المواد الأساسية في الجامعات والمتمثلة بـ (اللغة العربية ،اللغة الانكليزية، الحاسوب) من حيث عدد الوحدات الدراسية مع اختلاف الأنظمة التعليمية حصلت الموافقة على اعتماد الوحدات الدراسية للمواد الأساسية المشار إليها أعلاه بحسب الأنظمة التعليمية وعلى النحو الآتي:

١. النظام الفصلي والمقررات والسنوي: تكون بواقع وحدتين دراسيتين لكل عام دراسي للمرحلة الدراسية (الأولى والثانية)، مشيرين إن مادة اللغة الانكليزية في المجموعة الطبية تكون للمرحلة الأولى حصراً.

٢. مسار بولونيا: تكون مادة اللغة الانكليزية واللغة العربية بواقع (٢) ECTS ومادة الحاسوب بواقع (٣) ECTS .

أ.م.د. إيهاب ناجي عباس
مدير عام دائرة الدراسات والتخطيط والمتابعة
٢٠٢٣/١٠/ ٢٥

أمانة مجلس الجامعة

نسخة منه الى/

- مكتب معالي الوزير/ للتفضل بالاطلاع ..مع التقدير.
- مكتب السيد وكيل الوزارة لشؤون البحث العلمي إشارة إلى هامش السيد مدير عام دائرة البحث والتطوير عن سهادته بتاريخ ٢٠٢٣/١٠/٨/ للتفضل بالاطلاع..مع التقدير.
- جهاز الإشراف والتقويم العلمي/ للتفضل بالاطلاع ..مع التقدير.
- دائرة البحث والتطوير/ للتفضل بالاطلاع ..مع التقدير.
- دائرة التعليم الجامعي الأهلي/ لنفس الغرض أعلاه فيما يخص الجامعات والكليات الأهلية.. مع التقدير.
- ديوان الوقف الشيعي/ للتفضل بالاطلاع ولنفس الغرض أعلاه بخصوص الكليات التابعة لديوانكم.. مع التقدير.
- ديوان الوقف السني/ للتفضل بالاطلاع ولنفس الغرض أعلاه بخصوص الكليات التابعة لديوانكم.. مع التقدير.
- مكتب السيد المدير العام/إشارة إلى هامش سهادته على أصل مطالعتنا في (٢٠٢٣/١٠/٨) للتفضل بالاطلاع ..مع التقدير.
- دائرة الدراسات والتخطيط والمتابعة / قسم الدراسات والتخطيط/ شعبة المناهج مع الأولية.
- البريد الالكتروني.
- للمبادرة .

رئاسة جامعة البصرة
امانة مجلس الجامعة
الوارد
العدد ٦
التاريخ ١١/

بغداد /٢٠٢٣/١٠

وزارة التعليم العالي والبحث العلمي
دائرة الدراسات والتخطيط والمتابعة
قسم التخطيط والمتابعة / البريد السري
قسم التخطيط والمتابعة / البريد العادي

www.mohesr.gov.iq
www.dirasat-gate.org
planning-followup@mohesr.gov.iq
newadmission@mohesr.gov.iq

REPUBLIC OF IRAQ
MINISTRY OF HIGHER EDUCATION
AND SCIENTIFIC RESEARCH
STUDIES , PLANNING & FOLLOW UP DIRECTORATE
STUDIES & PLANNING DEPARTMENT

جمهورية العراق
وزارة التعليم العالي والبحث العلمي
دائرة الدراسات والتخطيط والمتابعة
قسم الدراسات والتخطيط

العدد : ت م ٣ / ٧٥٨٨
التاريخ : ٢٠٢٣/١٠/١٩

3004927

(القرآن منهجنا)
(عاجل جدا بالبريد الالكتروني)

الجامعات كافة /السيد رئيس الجامعة المحترم
الجامعات (الكليات) الاهلية كافة /السيد رئيس الجامعة (عميد الكلية) المحترم
م/منهاج دراسي

السلام عليكم ورحمة الله وبركاته

الحاقا بكتابينا بالعددين (ت م ٣/ ٤٢٥٤ في ٢٠٢٣/٨/١٤) و (ت م ٣/ ٥٣٧٧ في ٢٠٢٣/٨/١٦) ، حصلت المصادقة في (٢٠٢٣/١٠/١٥) على محضر اللجنة المشكلة بموجب الامر الوزاري المرقم (ت م٣/٥٦٧٥ في ٢٠٢٣/٨/٢٧) التي تتولى مهمة استكمال تدقيق مضمون المنهاج التخصصي تحت عنوان جرائم نظام البعث في العراق ليتم اعتماده بالجامعات الحكومية والاهلية كافة للعام الدراسي ٢٠٢٣/٢٠٢٤ وعلى النحو الاتي :-

اولا : اعتماد المنهاج الدراسي (جرائم نظام البعث في العراق) في الجامعات الحكومية والاهلية للتخصصات كافة المرفق طيا .

ثانيا : الية التدريس :

❖ **مادة جرائم نظام البعث في العراق تدرس كمادة مستقلة في المرحلة الدراسية الثانية:**

١. النظام الفصلي ونظام المقررات : تدرس لطلبة المرحلة الثانية (الفصل الدراسي الاول) وبواقع وحدتين دراسيتين (٣٠ ساعة نظرية / ٢ ساعة لكل اسبوع) .
٢. النظام السنوي : تدرس لطلبة المرحلة الثانية وبواقع وحدتين دراسيتين (٣٠ ساعة نظرية / ١ ساعة لكل اسبوع)
٣. نظام بولونيا : تكون (٣٠) ساعة نظرية لفصل دراسي واحد وبواقع (٢) ECTS

❖ **مادة الديمقراطية وحقوق الانسان تدرس كمادة واحدة في المرحلة الدراسية الاولى:**

١. النظام الفصلي ونظام المقررات : تدرس لطلبة المرحلة الاولى (الفصل الدراسي الاول) وبواقع وحدتين دراسيتين (٣٠ ساعة نظرية / ٢ ساعة لكل اسبوع) .
٢. النظام السنوي : تدرس لطلبة المرحلة الاولى وبواقع وحدتين دراسيتين (٣٠ ساعة نظرية / ١ ساعة لكل اسبوع)
٣. نظام بولونيا : تكون (٣٠) ساعة نظرية لفصل دراسي واحد وبواقع (٢) ECTS

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

College of Pharmacy - University of Basrah

2024

Introduction:

The educational program is a well-planned set of courses that include procedures and experiences arranged in the form of an academic syllabus. Its main goal is to improve and build graduates' skills so they are ready for the job market. The program is reviewed and evaluated every year through internal or external audit procedures and programs like the External Examiner Program.

The academic program description is a short summary of the main features of the program and its courses. It shows what skills students are working to develop based on the program's goals. This description is very important because it is the main part of getting the program accredited, and it is written by the teaching staff together under the supervision of scientific committees in the scientific departments.

This guide, in its second version, includes a description of the academic program after updating the subjects and paragraphs of the previous guide in light of the updates and developments of the educational system in Iraq, which included the description of the academic program in its traditional form (annual, quarterly), as well as the adoption of the academic program description circulated according to the letter of the Department of Studies T 3/2906 on 3/5/2023 regarding the programs that adopt the Bologna Process as the basis for their work.

In this regard, we can only emphasize the importance of writing an academic programs and course description to ensure the proper functioning of the educational process.

Concepts and terminology:

Academic Program Description: The academic program description provides a brief summary of its vision, mission and objectives, including an accurate description of the targeted learning outcomes according to specific learning strategies.

Course Description: Provides a brief summary of the most important characteristics of the course and the learning outcomes expected of the students to achieve, proving whether they have made the most of the available learning opportunities. It is derived from the program description.

Program Vision: An ambitious picture for the future of the academic program to be sophisticated, inspiring, stimulating, realistic and applicable.

Program Mission: Briefly outlines the objectives and activities necessary to achieve them and defines the program's development paths and directions.

Program Objectives: They are statements that describe what the academic program intends to achieve within a specific period of time and are measurable and observable.

Curriculum Structure: All courses / subjects included in the academic program according to the approved learning system (quarterly, annual, Bologna Process) whether it is a requirement (ministry, university, college and scientific department) with the number of credit hours.

Learning Outcomes: A compatible set of knowledge, skills and values acquired by students after the successful completion of the academic program and must determine the learning outcomes of each course in a way that achieves the objectives of the program.

Teaching and learning strategies: They are the strategies used by the faculty members to develop students' teaching and learning, and they are plans that are followed to reach the learning goals. They describe all classroom and extra-curricular activities to achieve the learning outcomes of the program.

Academic Program Description Form

University Name: **Basrah**

Faculty/Institute: **College of Pharmacy**

Scientific Department: **Pharmaceutics**

Academic or Professional Program Name: .....

Final Certificate Name: .....

Academic System: .....

Description Preparation Date:

File Completion Date: **09/ 5/ 2024**

Signature:

Head of Department Name:

Assist prof. Ahmed Sami Abd–Aljabar

Date:

Signature:

Scientific Associate Name:

Dr. Karmallah Shakir Mahmud

Date:

The file is checked by:

Department of Quality Assurance and University Performance

Director of the Quality Assurance and University Performance Department:

Dr. Rana Hasan Shamki

Date:

Signature:

Approval of the Dean

1. Program Vision

Providing a high-quality scientific level to graduate understanding and skilled pharmacists to ensure the best services to society and to reach a leadership position in the field of scientific research related to Pharmaceutical industry.

2. Program Mission

Spreading awareness among people about how to deal with Pharmaceutical preparations scientifically and objectively for the sake of the health and safety of community members.

3. Program Objectives

The first stage

S1 (Pharmacy and Pharmaceutical Accounts): It studies the basics of pharmacology and its history, in addition to teaching methods for measuring weights and volumes. As for S\2, it studies the basics of compounding medications in their different doses.

The second phase

S1\S\2 (Physical Pharmacy): It studies the physical, mathematical and chemical basis of all physical and chemical phenomena of substances in their solid, liquid and gaseous states.

third level

S1\S\2 (Technological Pharmacy): In these two chapters, you study all the basics of making pharmaceutical formulations such as powders/syrups/pills/ointments...etc., and methods of their preparation, stability, and packaging.

The fourth stage

S\1 (Biopharmacy) where the student studies the methods of absorption of various types of medications and their dosages, in addition to the mechanism of their absorption, spread, metabolism, and excretion inside and outside the body.

S\2 (Industrial Pharmacy) where the student studies the methods specific to the pharmaceutical industry in factories, such as blending, mixing and packaging.

level five

S\1 (Industrial Pharmacy), in which the student studies how to fully manufacture various pharmaceutical doses. S\2 (Design of pharmaceutical doses), in which the student studies how to design pharmaceutical doses in their various forms and with various methods of delivering them within the body.

S\2 (Biopharmacy) in which the student studies the drug dosages for hormones and proteins and methods of sterilizing them.

4. Program Accreditation

No

5. Other External Influences
No

6. Program Structure				
Program Structure	**Number of Courses**	**Credit Hours**	**Percentage**	**Reviews***
Institution Requirements				
College Requirements				
Department Requirements				
Summer Training				
Others				

***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 stage		Pharmaceutical Principle	2	0
First stage		Pharmaceutical Calculation	2	2
Second stage		Physical Pharmacy 1	3	2
Second stage		Physical Pharmacy 2	3	2
Third stage		Pharmaceutical Technology 1	3	2
Third stage		Pharmaceutical Technology 2	3	2
Fourth stage		Biopharmaceutics	2	2
Fourth stage		Industrial Pharmacy 1	3	2
Fifth stage		Industrial Pharmacy 2	3	2

Fifth stage		Dosage Forms Design	2	0
Fifth stage		Pharmaceutics Biotechnology	1	0

8. Expected Learning Outcomes of Program	
Knowledge	
• Identifying all types and forms of medicines. • Methods of preparing active ingredients in full medicinal doses for humans and animals. • Study the stability of prepared doses in various forms. • Study the drug effect, its effectiveness, and its mechanism of action within the body.	1- Theoretical lectures 2- Educational laboratories 3- Scientific reports 4- Desk research
Skills	
• Acquire skill in composition and preparation methods • Gaining the skill to know how to maintain stability for as long as possible • Acquire skill in diagnosing separated compounds	1- Theoretical lectures 2- Educational laboratories 3- Scientific reports 4- Desk research
Ethics	
• Using modern methods to present lectures in the form of slides • Video clips and explanatory diagrams • Visit pharmaceutical factories, if possible, and submit scientific reports • Assigning students to homework	Seminars - daily assignments - written exams Oral and written exams and writing reports on practical experiences

9. Teaching and Learning Strategies
Lectures, seminars and illustrative. videos

10. Evaluation Methods
Oral and written exams and writing reports on practical experiences.

11. Faculty						
Faculty Members						
Academic Rank	**Specialization**		**Special Requirements/Skills (If Applicable)**		**Number of Teaching Staff**	
	General	**Special**			**Staff**	**Lecturer**
Assist. Professor	PhD Pharmacy	Pharmaceutics			✔	
Assist. Professor	PhD Pharmacy	Pharmaceutics			✔	
Assist. Professor	PhD Pharmacy	Pharmaceutics			✔	
Assist. Professor	PhD Pharmacy	Pharmaceutics			✔	
Assist. Professor	PhD Pharmacy	Pharmaceutics			✔	
Assist. Professor	PhD Pharmacy	Pharmaceutics			✔	
Assist. Professor	MSc Pharmacy	Pharmaceutics			✔	
Lecturer	MSc Pharmacy	Industrial pharmacy			✔	
Lecturer	MSc Pharmacy	Pharmaceutics			✔	
Assist. Lecturer	MSc Pharmacy	Industrial pharmacy			✔	
Assist. Lecturer	MSc Pharmacy	Pharmacy			✔	
Assist. Lecturer	MSc Pharmacy	Pharmacy			✔	
Assist. Lecturer	MSc Pharmacy	Pharmacy			✔	

Assist. Lecturer	MSc Pharmacy	Pharmacy			✔	

Professional Development
Monitoring New Faculty Members
Training courses and workshops.
Professional Development for Faculty Members
Evaluation of professors' performance by students and teachers themselves by conducting mutual evaluation.

12. Acceptance Criterion
Academic grade and physical health

١٣. The Most Important Sources of Information About The Program
Scientific books and international research

14. Program Development Plan

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 stage		Pharmaceutical Principle					/				/				/
First stage		Pharmaceutical Calculation					/				/				/
Second stage		Physical Pharmacy 1				/	/			/	/			/	/
Second stage		Physical Pharmacy 2				/	/			/	/			/	/
Third stage		Pharmaceutical Technology 1					/				/				/
Third stage		Pharmaceutical Technology 2					/				/				/
Fourth stage		Biopharmaceutics				/	/			/	/			/	/
Fourth stage		Industrial Pharmacy 1				/	/			/	/			/	/
Fifth stage		Industrial Pharmacy 2				/	/			/	/			/	/
Fifth stage		Dosage Forms Design				/	/			/	/			/	/

Fifth stage		Pharmaceutics Biotechnology			/	/	/		/	/	/		/	/	/

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

1. Course Name:	
Principles of Pharmacy Practice	
2. Course Code:	
3. Semester / Year:	
1 st semester/2023-2024	
4. Description Preparation Date:	
May -2024	
5. Available Attendance Forms:	
On campus	
٦. Number of Credit Hours (Total) / Number of Units (Total)	
2/2(theoretical only)	
٧. Course Administrator's Name (Mention All, If More Than One Name)	
Name: Assis. Prof .Ahmed Sami Abd-aljabar Lec. Noor Yousif Fareed.	Email: ahmed.jabbar@uobasrah.edu.iq
8. Course Objectives	
Course Objectives	1. Providing information about old pharmacy. 2. Knowing several kinds of numbers, abbreviations that are commonly used in prescriptions and their meanings. 3. Understanding the components of typical prescription, the different unit systems and the relation between these systems. 4. Being familiar with the methods and tools of measuring weights and volumes, and how to calculate doses on different bases and know how to reduce or enlarge formulas. • Being able to describe values in percentage and ratio strength.

9. Teaching and Learning Strategies	
Strategy	In class lectures Group discussions Pre-class assignments demonstrations Hands on experience with laboratory work simulating compounding

10. Course Structure

Week	Hours	Required learning	Unit or Subject Name	**Learning Method**	**Evaluation Method**
1-2	4	Knowing several kinds of numbers, abbreviations that are commonly used in prescriptions	Some fundamentals of measurements and calculations	Lectures Lab work Group discussions	Oral exam Summative exam Technical skills evaluation
3-4	4	Understanding the components of typical prescription, its abbreviation and how to intrupt them	Interpretation of prescription or medication orders		
5-6	4	Understanding the metric system and different unit systems and the relation between these systems	The metric system		

7-8	4	Being able to calculate the correct dose for special patient groups and doses according to weight, height and surface area	Calculation of doses		
9-10	4	knowing how to reduce or enlarge formulas	Reducing and enlarging formulas		
11-12	4	Learning how to utilize density, specific gravity and specific volume in calculation formula ingredient	Density, specific gravity and specific volume		
13-15	6	being able to describe values in percentage and ratio strength	Percentage and ratio strength calculation		

11. Course Evaluation	
Distribution of the score out of 100 according to the tasks assigned to the student, such as daily preparation, daily oral, monthly, or written exams, reports, etc.	
12. Learning and Teaching Sources	
Required Textbooks (Curricular Books, If Any)	Pharmaceutical calculation 3rd edition by Ansel

Main References (Sources)	Pharmaceutical calculation 3rd edition by Ansel
Recommended Books and References (Scientific Journals, Reports...)	Pharmaceutical Calculations: A Conceptual Approach. 2019. Cham: Springer.
Electronic References, Websites	/https://pharmlabs.unc.edu/labexercises/compounding/rxmedorders The Pharmaceutics and Pharmaceutical Compounding Laboratory

1. Course Name:
Pharmaceutical Calculation
2. Course Code:
3. Semester / Year:
2 nd semester/2023-2024
4. Description Preparation Date:
May -2024
5. Available Attendance Forms:
On campus
٦. Number of Credit Hours (Total) / Number of Units (Total)
4/3(2theoretical +1 practical)
٧. Course Administrator's Name (Mention All, If More Than One Name)
Name: Assis. Prof .Ahmed Sami Abd-aljabar Email: ahmed.jabbar@uobasrah.edu.iq Assis. Prof .Ahmed Abd alkareem Abd alabass Lec. Noor Yousif Fareed Assist lecturer Aula Jawad Assist lecturer Mustafa Ragab Ph Zaniab Taha Ph Hala Klalid Ph Russel Ahmed

8. Course Objectives	
Course Objectives	1. It involves the calculation of pharmaceutical ingredients, dosage forms, pharmaceutical preparations with extemporaneous formulations and biological parameters of drug substances. 2. The course teaches mathematical operations such as dilution and concentration of different types of liquids, and how to prepare isotonic solutions, electrolyte solutions, and intravenous additives.

9. Teaching and Learning Strategies	
Strategy	In class lectures Group discussions Pre-class assignments demonstrations Hands on experience with laboratory work simulating compounding

10. Course Structure

Week	Hours	Required learning outcomes	Unit or Subject Name	Learning Method	Evaluation Method
1-5	10		Dilution and concentration of pharmaceutical preparations.	Lectures Lab work Group discussions	Oral exam Summative exam Technical skills evaluation

6-8	6		Isotonic solutions.		
9-11	6		Electrolyte solutions (milliequivalents, millimoles and milliosmoles)		
12-15	8		Constituted solutions, I.V admixtures and flow rate calculations		

11. Course Evaluation

Distribution of the score out of 100 according to the tasks assigned to the student, such as daily preparation, daily oral, monthly, or written exams, reports, etc.

12. Learning and Teaching Sources

Required Textbooks (Curricular Books, If Any)	Pharmaceutical calculation 3rd edition by Ansel
Main References (Sources)	Pharmaceutical calculation 3rd edition by Ansel
Recommended Books and References (Scientific Journals, Reports...)	Pharmaceutical Calculations: A Conceptual Approach. 2019. Cham: Springer.

Electronic References, Websites	https://pharmlabs.unc.edu/labexercises/compounding/rxmedorders/

1. Course Name:
Physical Pharmacy I
2. Course Code:
3. Semester / Year:
1 st semester/2023-2024
4. Description Preparation Date:
May -2024
5. Available Attendance Forms:
On campus
٦. Number of Credit Hours (Total) / Number of Units (Total)
3/4(3 theoretical +1 practical)
٧. Course Administrator's Name (Mention All, If More Than One Name)
Name: Assis. Prof .Dr. Mohammed Sattar Jabar Email:mohammed.jabbar@uobasrah.edu.iq Lec. Noor Yousif Fareed Lec. Malath Abd-allataif Al-shawi Pharmacist Hussain Ali Hussain Pharmacist Hiba Ali Pharmacist Hind Yonus
8. Course Objectives

Course Objectives	1. To understand the application of quantitative and theoretical principles of the physical characters of matter in the practice of pharmacy. 2. It aids the pharmacists in their attempt to predict the solubility, compatibility and biological activity of drug products. 3. Providing knowledge that will help in the development of new drugs and dosage forms as well as in improvement of various modes of administration.

9. Teaching and Learning Strategies	
Strategy	In class lectures Group discussions Pre-class assignments Demonstrations Hands on experience with laboratory work simulating compounding

10. Course Structure

Week	Hours	Required learning outcomes	Unit or Subject Name	Learning Method	Evaluation Method
1-3	10	Understand the differences in binding forces and their relevance to different types molecules. Describe the solid state, crystallinity, solvates, and	States of matter	Lectures Lab work Group discussions	Oral exam Summative exam Technical skills evaluation

4-6	8	Understanding laws of thermochemistry, free energy function and applications	Thermodynamics		
7-8	7	Understanding the properties of non-electrolytes, ideal and real colligative properties, molecular weight determination.	Solutions of non-electrolytes,		
9-10	5	Understanding. The properties of electrolyte solutions , Arrhenius theory of dissociation , theory of strong electrolytes, ionic strength, Debye-Huchle theory, coefficients for expressing colligative properties.	Solution of electrolyte		
11-13	8	Understanding modern theories of acids, bases and salts, acid-base equilibria, calculation of pH, acidity constants, the effect of ionic strength and free energy.	Ionic equilibria		

14-15	7	Understanding the buffer equation; buffer capacity; methods of adjusting tonicity and pH; buffer and biological system	Buffered and isotonic solutions		

11. Course Evaluation	
Distribution of the score out of 100 according to the tasks assigned to the student, such as daily preparation, daily oral, monthly, or written exams, reports, etc.	
12. Learning and Teaching Sources	
Required Textbooks (Curricular Books, If Any)	Martin's Physical Pharmacy and Pharmaceutical Sciences: Physical Chemical and Biopharmaceutical Principles in the Pharmaceutical Sciences, 6th Edition
Main References (Sources)	Martin's Physical Pharmacy and Pharmaceutical Sciences: Physical Chemical and Biopharmaceutical Principles in the Pharmaceutical Sciences, 6th Edition
Recommended Books and References (Scientific Journals, Reports...)	Florence AT, Attwood D. FASTtrack: Physical Pharmacy. Pharmaceutical Press; 2008 Almoazen H. Felton L.: Remington: Felton Essentials of pharmaceutics. 2012.
Electronic References, Websites	

1. Course Name:
Physical Pharmacy II
2. Course Code:
3. Semester / Year:
2 nd semester/2023-2024
4. Description Preparation Date:
May -2024
5. Available Attendance Forms:
On campus
٦. Number of Credit Hours (Total) / Number of Units (Total)
5 (3 theoretical +2 practical)/4(3 theoretical +1 practical)
٧. Course Administrator's Name (Mention All, If More Than One Name)
Name: Assis. Prof .Dr. Mohammed Sattar Jabar Email:mohammed.jabbar@uobasrah.edu.iq Lec. Noor Yousif Fareed Lec. Malath Abd-allataif Al-shawi Assit Lec Hussien Jabar Pharmacist Hussain Ali Hussain Pharmacist Hiba Ali Pharmacist Hind Yonus
8. Course Objectives

Course Objectives	1. To understand the application of quantitative and theoretical principles of the physical characters of matter in the practice of pharmacy. 2. It aids the pharmacists in their attempt to predict the solubility, compatibility and biological activity of drug products. 3. This knowledge it will help in the development of new drugs and dosage forms as well as in improvement of various modes of administration.

9. Teaching and Learning Strategies

Strategy	In class lectures Group discussions Pre-class assignments Demonstrations Hands on experience with laboratory work simulating compounding

10. Course Structure

Week	Hours	Required learning outcomes	Unit or Subject Name	Learning Method	Evaluation Method
1-3	10	Solvent-solute interactions, solubility of gases in liquids, solubility of liquids in liquids, solubility of non-ionic solids in liquids distribution of solutes between immiscible solvents.	Solubility and distribution phenomena	Lectures Lab work Group discussions	Oral exam Summative exam Technical skills evaluation

4-6	9	Understanding rate and orders of reactions, influence of temperature and other factors on reactions rate, decomposition of medicinal agents and accelerated stability analysis.	Chemical Kinetics and Stability		
Week 7	3	Classification of complexes, methods of analysis, thermodynamic treatment of stability constants.	Complexation		
8-10	6	Understanding of liquid interfaces, surface free energy, measurement of interfacial tension, spreading coefficient, surface active agents and wetting phenomena.	Interfacial phenomena		

11-12	6	Understanding of dispersed system and its pharmaceutical application, types of colloidal systems, kinetic properties, diffusion, zeta potential, solubilization.	Colloids		
Week 13	3	Understanding particle size determination methods,particle shape and surface area, porosity, density.	Micrometrics		
Week 14	3	An introduction to Newtonian systems, thixotropy measurement, negative thixotropy, determination of thixotropy.	Rheology		
Week 15	3	Definitions of polymers and their pharmaceutical applications as function of molecular weight averages.	Polymer science		
11. Course Evaluation					

Distribution of the score out of 100 according to the tasks assigned to the student, such as daily preparation, daily oral, monthly, or written exams, reports, etc.	
12. Learning and Teaching Sources	
Required Textbooks (Curricular Books, If Any)	Martin's Physical Pharmacy and Pharmaceutical Sciences: Physical Chemical and Biopharmaceutical Principles in the Pharmaceutical Sciences, 6th Edition
Main References (Sources)	Martin's Physical Pharmacy and Pharmaceutical Sciences: Physical Chemical and Biopharmaceutical Principles in the Pharmaceutical Sciences, 6th Edition
Recommended Books and References (Scientific Journals, Reports...)	Florence AT, Attwood D. FASTtrack: Physical Pharmacy. Pharmaceutical Press; 2008 Almoazen H. Felton L.: Remington: Felton Essentials of pharmaceutics. 2012.
Electronic References, Websites	

1. Course Name:
Pharmaceutical technology I
2. Course Code:
3. Semester / Year:
2023-2024 – 1st semester
4. Description Preparation Date:
10th /May /2024
5. Available Attendance Forms:
On campus
٦. Number of Credit Hours (Total) / Number of Units (Total)
Theory 3 hr /laboratory 1.5 / 4 units
٧. Course Administrator's Name (Mention All, If More Than One Name)

Name:	E.mail
Assist. Prof. dr. Muqdad Athab Musa	muqdad.musa@uobasrah.edu.iq
Assist. prof.dr. Ahmed Abdulkareem Alsaad	ahmed.abdualbbas@uobasra.edu.iq
Lab instructor	
Assist. Lecturer Neven Nsaif Jasim	neven.jasim@uobasrah.edu.iq
Pharmacist Hussain Ali Hussain	
Pharmacist Hiba Ali	
Pharmacist Hind Yonus	

8. Course Objectives	
Course Objectives	• Knowledge • Understand the theoretical bases for the technology of preparing liquid dosage forms (solutions, suspension, elixir, and dispersions with respect to their raw materials, compositions, methods of preparation, stability, storage and uses. • Learn and practice skills required for extemporaneous compounding of liquid dosage form • Differentiate between the different liquid dosage forms with regards to their physical. properties, appearance, methods of preparation, suitability for a given drug compound, and stability. • Select the appropriate liquid dosage form for a drug compound. • Attitude • practice the role of pharmacist in providing safe and effective medication • employ knowledge and skills learned to provide alternatives when needed
9. Teaching and Learning Strategies	
Strategy	In class lectures Group discussions Pre-class assignments demonstrations Hands on experience with laboratory work simulating compounding
10. Course Structure	

Week	**Hours**	**Required learning outcomes**	**Unit or Subject Name**	**Learning Method**	**Evaluation Method**
1-2	**2 lectures 1.5 lab**	**• Define the dispersed system** **• Distinguish the dispersed system according to it's physical state** **• acquire knowladge about different types of pharmaceutical dispersions and their intended uses.** **• Identify the methods and techniques employed in preparing stable pharmaceutical dispersion .** **• Identify the factors that affect the stability of dispersed system , such temperature and environment conditions**	**Dispersed system**	**Lectures Lab work Group discussion**	**Oral quiz Summative quiz Technical skills evaluation**

2-3	**2 lectures 1.5 lab**	**• Define the pharmaceutical solution • Differentiate between the different types of pharmaceutical solutions based on their intended uses. Compare among different types of solutions regarding components (aromatic or official solution) and uses (oral, ophthalmic ,nasal ,parenteral solution) Learn about the advantages and disadvantages of using solutions and techniques employed in preparing of stable pharmaceutical solutions • Identify the factors that affect the stability of solution such temperature and environment conditions**	**Solutions**	**Lectures Lab work Group discussion**	**Oral quiz Summative quiz Technical skills evaluation**

3-4	**4 lectures 1.5 lab**	**Define the solubility Knowledge of Factors affecting solubility; Expression of dissolution; dissolution rate versus solubility**	**solubility**	**Lectures Lab work Group discussion**	**Oral quiz Summative quiz Technical skills evaluation**
5-6	**4.lectures 1.5 lab**	**Define syrups as pharmaceutical dosage form Compare syrup with other solutions and dosage forms regarding advantages and disadvantages Preparation of pharmaceutical syrup and learn about its stability and factor affecting it Determination of active pharmaceutical ingredient that could be formulated as syrup**	**Syrups**	**Lectures Lab work Group discussion**	**Oral quiz Summative quiz Technical skills evaluation**

6-7	**3.lectures 1.5 lab**	**Define spirits and elixir and compare between them Learn about the stability of mixed system solution Knowledge the advantages and disadvantages of elixir and spirit Preparation of pharmaceutical spirit and elixir from their row material**	**Preparation of solutions using mixed solvent systems; spirits, and elixirs**	**Lectures Lab work Group discussion**	**Oral quiz Summative quiz Technical skills evaluation**
7-8		**Mid term exam**			
9-10	**4.lecture 1.5 lab**	**Define tincture and it uses Knowlage the benefit of using tincture as fluid extract Knowlade about method used to prepare tincture Preparation of tincture from row material**	**Tinctures; fluid extracts; extracts of resins and oleoresins.**	**Lectures Lab work Group discussion**	**Oral quiz Summative quiz Technical skills evaluation**

11-12	**6 lectures 1.5 lab**	**Define suspension ,its benefit as pharmaceutical dosage form and its disadvantages Compare suspension with solution and other dosage form Learn about various suspending agent and its mechanism of action Prepare a pharmaceutical suspension and study its stability and factors affect it**	**Suspension**	**Lectures Lab work Group discussion**	**Oral quiz Summative quiz Technical skills evaluation**
13-15		**Final exam**			

11. Course Evaluation
20% lab work (5% oral exams, 10% technique, 5% quizzes), 15% mid-term exam, 5% daily work, in-class quizzes, 60% final exam

12. Learning and Teaching Sources	
Required Textbooks (Curricular Books, If Any)	**Ansel's Pharmaceutical Dosage Forms and Drug Delivery Systems Eleventh Edition**
Main References (Sources)	
Recommended Books and References (Scientific Journals, Reports...)	**Physiochemical Principles of Pharmacy Alexender T Florence, David Attwood 4th Edition , 5th edition**
Electronic References, Websites	**Drugs.com USPNF.com**

1. Course Name:
Pharmaceutical Technology II
2. Course Code:
3. Semester / Year:
2023-2024 – 2nd semester
4. Description Preparation Date:
10th /May /2024
5. Available Attendance Forms:
on campus
٦. Number of Credit Hours (Total) / Number of Units (Total)
Theory 3 hr /laboratory 1.5 / 4 units
٧. Course Administrator's Name (Mention All, If More Than One Name)
Name: E.mail Assist. Prof. dr. Muqdad Athab Musa muqdad.musa@uobasrah.edu.iq Assist. prof.dr. Ahmed Abdulkareem ALsaad ahmed.abdulabbas@uobasrah.edu.iq **Lab instructor** Assist. Lecturer Neven Nsaif Jasim neven.jasim@uobasrah.edu.iq Pharmacist Hussain Ali Hussain Pharmacist Hiba Ali Pharmacist Hind Yonus
8. Course Objectives

Course Objectives	• Knowledge • Understand the theoretical bases for the technology of preparing emulsion, powder, capsule, and semisolid dosage forms with respect to their raw materials, compositions, methods of preparation, stability, storage and uses. • Learn and practice skills required for extemporaneous compounding of powder, capsule and semisolid dosage forms • Differentiate the different solid and semisolid dosage forms applicable for extemporaneous compounding • Identify causes of drug incompatibilities in drug dispensing and compounding. • Skills • Mixing and preparation od powder and capsule dosage form in extemporaneous compounding • Mixing and preparation of semisolid dosage forms in extemporaneous compounding • Identify incompatibilities in drug admixture • proper use of basic instruments and glass wares commonly used in extemporaneous compounding • Attitude • practice the role of pharmacist in providing safe and effective medication • employ knowledge and skills learned to provide alternatives when needed • proper use of resources
9. Teaching and Learning Strategies	
Strategy	In class lectures Group discussions Pre-class assignments demonstrations Hands on experience with laboratory work simulating compounding
10. Course Structure	

Week	**Hours**	**Required learning outcomes**	**Unit or Subject Name**	**Learning Method**	**Evaluation Method**

1-2	**lecture 1.5 lab**	**• Define the pharmaceutical emulsions • Distinguish between the different types of pharmaceutical emulsions based on their physical state • Differentiate between the different types of pharmaceutical emulsions based on their intended uses. • Compare and contrast emulsification theories: surface tension, oriented wedge, and Interfacial film. • Compare and contrast various types of emulsifying agents • Identify the methods and techniques employed in preparing of stable pharmaceutical emulsions. • Identify the factors that affect the stability of emulsion, such temperature and environment conditions**	**Emulsion**	**Lectures Lab work Group discussions**	**Oral exam Summative exam Technical skills evaluation**

2-3	**3 lecture +1.5 lab**	**• Compare and contrast various suppository and insert, in terms of physical appearance, size and shape** **• Describe the advantages of suppositories and inserts.** **• Identify and explain physiologic factors that influence the drug absorption from rectal suppository administration** **• Identify and explain the physicochemical factors of the drug and suppository/insert base as these influence absorption** **• Compare and contrast the various classes of suppository bases** **• Describe the three methods of suppository preparation**	**Suppositories and Inserts**	**Lectures** **Lab work** **Group discussions**	**Oral exam** **quiz** **Summative exam** **Technical skills evaluation**

3-4	**5.lectures 3 labs**	**Differentiate between the various types of semisolid bases on the basis of physical and chemical properties. List the criteria for the selection of a semisolid base to treat a topical affliction. Describe the methods to incorporate (an) active ingredient(s) into a semisolid base. Explain the difference between an ointment, a cream, and a gel.**	**Semisolid dosage forms**	**Lectures Lab work Group Discussions**	**Oral exam quiz Summative exam Technical skills evaluation**

5-6	**4.lecture 1.5 lab**	**Differentiate a powder from a granule. Explain how a drug's powder particle size influences the pharmaceutical dosage forms which will be used to administer it. Define micrometrics, the angle of repose, levigation, spatulation, and trituration. Compare and contrast the various types of medicated powders, e.g., bulk, divided. Provide examples of medicated powders used in prescription and nonprescription products**	**Powders and granules**	**Lectures Lab work Group Discussions**	**Oral exam quiz Summative exam Technical skills evaluation**
6-7	**3.lectures 1.5 lab**	**Differentiate between hard and soft gelatin capsule. Understand the advantages and disadvantages of each type of capsule Identify the excipients used for both type of capsules Recognize the compendial requirement of capsules Understand the appropriate method for compounding and packaging and storage of capsules**	**Capsule**	**Lectures Lab work Group discussion**	**Oral exam quiz Summative exam Technical skills evaluation**

7-8		**Mid term exam**			
9-10	**4 lectures 1.5 exam**	**Define aerosols Understand the types and applications of aerosols Identify the main advantage of aerosols Define foams Explore the types and applications of foams Identify the main advantage of foams Differentiate between aerosols and foams**	**Aerosols and foam**	**Lectures Lab work Group Discussions**	**Oral exam quiz Summative exam Technical skills evaluation**
11-12	**5 lectures 1.5 lab**	**This topic discusses the drug interactions from a physicochemical rather than a pharmacological or pharmacodynamic viewpoint. Sometimes the interaction is beneficial and sometimes not.**	**Physiochemical drug interactions and incompatibilities**	**Lectures Lab work Group Discussions**	**Oral exam quiz Summative exam Technical skills evaluation**
		In reading this topic, you should appreciate that there are several causes of interactions and incompatibilities, which include: ● pH effects ● Change of solvent ● Cation_–_anion interactions ● Salting-out and salting-in ● Chelation ● Ion-exchange interactions			
13-15		**Final exam**			

11. Course Evaluation	
20% lab work (5% oral exams, 10% technique, 5% quizzes), 15% mid-term exam, 5% daily work, in-class quizzes, 60% final exam	
12. Learning and Teaching Sources	
Required Textbooks (Curricular Books, If Any)	**Ansel's Pharmaceutical Dosage Forms and Drug Delivery Systems Eleventh Edition**
Main References (Sources)	
Recommended Books and References (Scientific Journals, Reports...)	**Physiochemical Principles of Pharmacy** **Alexender T Florence, David Attwood** **4th Edition Chapter 10 (2006) 5th Edition Chapter 11(2011)**
Electronic References, Websites	**Drugs.com** **USPNF.com**

1. Course Name:
Biopharmaceutics
2. Course Code:
3. Semester / Year:
First Semester/4th year
4. Description Preparation Date:
5/2024
5. Available Attendance Forms:
On campus

٦. Number of Credit Hours (Total) / Number of Units (Total)
2 hours/week (Theory), 2hours/ week (Practical), Total units=4
٧. Course Administrator's Name (Mention All, If More Than One Name)
Name: Assist. Prof. Dr. Mohammed Sabbar mohammed.sabar@uobasrah.edu.iq Assist. Prof. Dr. Ahmed abd alkareem ahmed.abdulabbas@uobasrah.edu.iq Assist. Lec. Hussain Jabbar Pharmacist. Hala Khalid Halakh@gmail.com Pharmacist. Rusul Ahmed rusdull989@gmail.com Pharmacist. Zainab Taha Zainabtaha24@gmail.com
8. Course Objectives

Course Objectives	The course deals with the physical and chemical properties of drug substance, dosage form and the biological effectiveness of the drug or drug product upon administration, including drug availability in the human or animal body from a given dosage form. The pharmacokinetic part of the coarse deals with the time-coarse of the drug in the biological system, and quantification of drug concentration pattern in normal subjects and in certain disease states.

9. Teaching and Learning Strategies	
Strategy	1-Lectures and Presentation 2-Discussions 3- Laboratory experiments 4- Inverted classrooms

10. Course Structure

Week	Hours	Required learning	Unit or Subject Name	Learning	Evaluati

1	**2**	Concept of biopharmaceutics, bioavailability, and pharmacokinetics	Introduction to biopharmaceutics.		
2	**6**	Drug physicochemical factors influencing drug absorption: Solubility and dissolution Dosage form factors influencing drug absorption: type of the dosage form	Biopharmaceutic aspects of products; drug absorption; mechanisms of absorption; physicochemical factors; dissolution rate; effects of excipients; type of dosage forms.	Lectures - White board -Data show Power point Explanatory diagrams -Scientific YouTube videos -laboratory experiments	-Written exams - Oral exams Laboratory reports
3	**2**	Discuss one compartment model in pharmacokinetic	One compartment open model		
4	**2**	Discuss multicompartment model in pharmacokinetic	Multicompartment models.		
5	**2**	Discuss the mechanisms of drug absorption	Pharmacokinetics of drug absorption		
6	**2**	Discuss the bioavailability and bioequivalence of drug	Bioavailability and bioequivalence		

7	**2**	Discuss the mechanisms of drug clearance from the biological systems	Clearance of drugs from the biological systems.		
8	**2**	Discuss the route of elimination of drug from the liver	Hepatic elimination of drugs.		
9	**2**	Discuss the effects of protein binding on drug bioavailability	Protein binding of drugs		
10	**2**	Discuss the IV infusion system of drugs	Intravenous infusion		
11	**2**	Discuss the characteristics of multiple dosage regimen	Multiple dosage regimens.		
12	**2**	Discuss the nonlinear kinetics of the drug	Non-linear pharmacokinetics.		
13	**2**	Discuss how the dose adjusted in cases of renal diseases	Dosage adjustment in renal diseases		

11. Course Evaluation

Distribution of the score out of 100 according to the tasks assigned to the student, such as daily preparation, daily oral, monthly, or written exams, reports, etc.

12. Learning and Teaching Sources

Required Textbooks (Curricular Books, If Any)	Shargel L., Yu AB., (Eds). Applied Biopharmaceutics and Pharmacokinetics
Main References (Sources)	Aulton's Pharmaceutics: The Design and Manufacture of Medicines, 3ed Michael E.
Recommended Books and References (Scientific Journals, Reports...)	British pharmacopoeia United State Pharmacopoeias European Pharmacopeias
Electronic References, Websites	

1. Course Name:
Industrial Pharmacy I
2. Course Code:
3. Semester / Year:
Second Semester
4. Description Preparation Date:
5/2024
5. Available Attendance Forms:
On campus
٦. Number of Credit Hours (Total) / Number of Units (Total)
3 hours/week (Theory), 1.5hours/ week (Practical), Total units=4
٧. Course Administrator's Name (Mention All, If More Than One Name)
Name: Assist. Prof. Dr. Ahmed Najem Abood ahmed.abood@uobasrah.edu.iq Assist. Lec. Suhair Murtadha suhar.ashor@uobasrah.edu.iq Pharmacist. Hala Khalid Halakh@gmail.com Pharmacist. Rusul Ahmed rusdull989@gmail.com Pharmacist. Zainab Taha Zainabtaha24@gmail.com
8. Course Objectives

Course Objectives	The subject aim to teach pharmacy students the steps and lines Upon which the Performulation processing of pharmaceutical dosage forms. This fundamental course provides the required principles to integrate knowledge of Pharmaceutical Technology in Performulation of perfect dosage form. It includes: milling, mixing, drying and filtration, besides sterilization to achieve a proper processing of dosage form

9. Teaching and Learning Strategies	
Strategy	1-Lectures and Presentation 2-Discussions 3- Laboratory experiments 4- Inverted classrooms

10. Course Structure

Week	**Hours**	**Required learning**	**Unit or Subject Name**	**Learning**	**Evaluati**

1	**3**	Understand the Principles of pharmaceutical processing; mixing	fluid mixing; Flow characteristics; mechanisms of mixing; mixing equipment's; batch and continuous mixing		
2	**3**	Knowledge of the mixer and best selection of mixer	batch and continuous mixing; mixer selection.		
3	**3**	Describe the Milling	pharmaceutical application of milling; size distribution and measurement; Theory of comminution	Lectures -White board -Data show Power point	-Written exams
4	**3**	Understand types of mills	types of mills; factors influencing milling; selection of mill techniques and techniques of milling	Explanatory diagrams -Scientific YouTube videos	- Oral exams Laboratory reports
5	**3**	Understand Drying industrial process	Definition of drying; purpose; Psychrometry (humidity measurement); theory of drying; drying of solids, classification of dryer; specialized drying methods	-laboratory experiments	
6	**3**	Define drying equipment's			
7	**3**	Understand process of Clarification and filtration	Theory; filter media; filter aids; selection of drying method; non - sterile and sterile operations; integrity testing		

8	**3**	Understand the equipment's and systems (commercial and laboratory) of filtration.	equipment's and systems (commercial and laboratory) of filtration		
9	**3**	Describe Sterilization; validation of methods; microbial death kinetics	Sterilization; validation of methods; microbial death kinetics		
10	**3**	To understand Methods of sterilization	Methods of sterilization (thermal and non-thermal); mechanisms; evaluation		
11	**3**	Describe Pharmaceutical dosage forms; sterile products	development; formulation		
12	**3**	Learn production; processing of sterile product	production; processing; quality control.		

11. Course Evaluation	
Distribution of the score out of 100 according to the tasks assigned to the student, such as daily preparation, daily oral, monthly, or written exams, reports, etc.	
12. Learning and Teaching Sources	
Required Textbooks (Curricular Books, If Any)	The Theory and Practice of Industrial Pharmacy by Leon Lachman et al

Main References (Sources)	Pharmaceutics: The Science of Dosage Form Design, by Michael E. Aulton
Recommended Books and References (Scientific Journals, Reports...)	Ansel's Pharmaceutical Dosage Forms and Drug Delivery Systems by Loyd Allen
Electronic References, Websites	

1. Course Name:
Industrial Pharmacy II
2. Course Code:
3. Semester / Year:
First Semester/٥th year
4. Description Preparation Date:
5/2024
5. Available Attendance Forms:
On campus
٦. Number of Credit Hours (Total) / Number of Units (Total)
٣ hours/week (Theory), 2hours/ week (Practical), Total units=٥
٧. Course Administrator's Name (Mention All, If More Than One Name)
Assist. Prof. Dr. Ahmed Najem Abood ahmed.abood@uobasrah.edu.iq Assist. Prof. Dr. Mohammed Sabar mohammed.sabar@uobasrah.edu.iq Lecturer. Malath Abd al-lataif Assist. Lecturer. Aula Jawad Naji aula.naji@uobasrah.edu.iq Pharmacist. Hala Khalid Halakh@gmail.com Pharmacist. Rusul Ahmed rusdull989@gmail.com Pharmacist. Zainab Taha Zainabtaha24@gmail.com
8. Course Objectives

Course Objectives	The course enables technical setup for coordination of standards for formulation of typical dosage forms and the principles needed to learn mass production of different pharmaceutical dosage forms. The syllabus includes different dosage forms like tablets, capsules, aerosols, emulsion, etc, besides the advanced techniques like enteric coating and micro-encapsulation.

9. Teaching and Learning Strategies	
Strategy	1-Lectures and Presentation 2-Discussions 3- Laboratory experiments 4- Inverted classrooms

10. Course Structure

Week	Hours	Required learning	Unit or Subject	Learning	Evaluati

1	**10**	Introducing how to manufacturer Cereals and its various methods For various evaluations of the grain industry Determining factors for grain evaluation Identify the most important obstacles and how to get rid of them	Pharmaceutical dosage forms: Tablets		
2	**4**	properties; equipment's; processing; types of coating (sugar and film); quality control, and problems	Tablet coating		
3	**3**	Hard gelatin capsules; materials; production; filling equipment's; formulation; special techniques.	Capsules: Hard gelatin capsules;	Lectures - White board -Data show Power point Explanatory diagrams -Scientific YouTube videos -laboratory experiments	-Written exams - Oral exams Laboratory reports
4	**2**	Manufacturing methods; nature of capsule shell and content; processing and control; stability.	Soft gelatin capsules		
5	**2**	core and coating materials; stability; equipment's and methodology	Micro-encapsulation		
6	**3**	theory and concepts; evaluation and testing; formulation	Modified (sustained release) dosage form		
7	**3**	Formulation; stability and equipment's	Liquids: Formulation		
8	**3**	Theory; formulation and evaluation.	Suspensions:		
9	**3**	Theory and application; types; formulation; equipment's and quality control.	Emulsions:		
10	**3**	Percutaneous absorption; formulation; types of bases (vehicles) preservation; processing and evaluation	Semisolids:		
11	**3**	Rectal absorption; uses of suppositories; types of bases; manufacturing processes; problems and evaluation.	Suppositories:		
12	**6**	Propellants; containers; formulation; types and selection of components; stability; manufacturing; quality control and testing	Pharmaceutical aerosols		

11. Course Evaluation

Distribution of the score out of 100 according to the tasks assigned to the student, such as daily preparation, daily oral, monthly, or written exams, reports, etc.

12. Learning and Teaching Sources

Required Textbooks (Curricular Books, If Any)	Leon Lachman, “The Theory and practice of industrial pharmacy”
Main References (Sources)	Aulton's Pharmaceutics: The Design and Manufacture of Medicines, 3ed Michael E. Aulton (Author). Churchill, Livingstone-Elsevier
Recommended Books and References (Scientific Journals, Reports...)	
Electronic References, Websites	

1. Course Name:
Dosage form design
2. Course Code:
569 PDf
3. Semester / Year:
2nd semester /5th stage 2023-2024
4. Description Preparation Date:
10th/may /2024
5. Available Attendance Forms:
On campus
٦. Number of Credit Hours (Total) / Number of Units (Total)
2 hour /2 unit
٧. Course Administrator’s Name (Mention All, If More Than One Name)
Name: Assist prof. Mohamed Sabbar Abdul Ruda Email: mohamme.sabar@uobasrah.edu.iq
8. Course Objectives

Course Objectives	Upon completion of the course, students will: • Understand the FDA's regulatory approval process for pharmaceuticals. • Explore the historical evolution of drugs and pharmacy. • Differentiate between Investigational New Drug (IND) and New Drug Application (NDA). • Discern the phases of clinical trials. • Identify conditions for reclassifying old drugs as "new". • Define pharmacology, drug metabolism, and toxicology. • Familiarize with cGMP terminology and CFR guidelines. • Describe tamper-evident packaging and manufacturing vs. compounding. • Compare drug dosage forms. • Outline preformulation study requirements. • Explain drug degradation mechanisms. • Understand accelerated stability studies. • Categorize pharmaceutical ingredients. • Differentiate drug transport routes. • Discuss key data points in drug absorption. • Define biopharmaceutics, bioavailability, and bioequivalence. • Discuss dissolution rate importance in solid dosage forms. • Describe pharmacokinetic events from ingestion to excretion. • Perform basic pharmacokinetic calculations.

9. Teaching and Learning Strategies

Strategy	In class lectures Group discussions Pre-class assignments

10. Course Structure

Week	Hours	Required learning outcomes	Unit or Subject Name	Learning Method	Evaluation Method
1	**2**	**introduction**	Section 1 Chapter 1	Class lecture Group discussion	In class quizzes Examinations
2	**2**	Introduction to drugs and pharmacy; pharmaceutical	Section 1 Chapter 1		

		consideration: the need for the dosage form.			
3	**2**	New Drug Development and Approval Process	Section 1 Chapter 2		
4	**2**	Methods of drug discovery, lead compound and goal drug	Section 1 Chapter 2		
5	**2**	Prodrugs	Section 1 Chapter 2		
6	**2**	Pharmacology, and Toxicology	Section 1 Chapter 2		
7	**2**	Acute or Short-Term Toxicity Studies	Section 1 Chapter 2		
8	**2**	Carcinogenicity Studies, Reproduction Studies, Genotoxicity or Mutagenicity Studies	Section 1 Chapter 2		
9	**2**	Current Good Manufacturing Practices	Section 1 Chapter 3		
10	**2**	Good Compounding Practices	Section 1 Chapter 3		
11	**2**	Packing, Labeling and Storage of Pharmaceutics	Section 1 Chapter 3		
12	**2**	Dosage Form Design: Pharmaceutical and Formulation Considerations and Preformulation study	Section2 Chapter 4		
13	**2**	Drug Stability: Mechanisms of degradation	Section2 Chapter 4		
14	**2**	Drug excipients: Flavoring Pharmaceuticals Sweetening Colorants and preservative	Section2 Chapter 4		
15	**2**	Biopharmaceutical and pharmacokinetic considerations: Dissolution and drug absorption	Section2 Chapter 4		

16	**2**	Bioavailability and bioequivalence Routes of administration Pharmacokinetic principles	Section2 Chapter5		
17		review			

11. Course Evaluation	
20% mid term exam 10% in class evaluation 70 % final exam	
12. Learning and Teaching Sources	
Required Textbooks (Curricular Books, If Any)	Ansel's Pharmaceutical Dosage Forms and Drug Delivery Systems by Loyd Allen 11th ed. 2017
Main References (Sources)	Ansel's Pharmaceutical Dosage Forms and Drug Delivery Systems by Loyd Allen 11th ed. 2017
Recommended Books and References (Scientific Journals, Reports...)	Aulton's pharmaceutics: The design and manufacture of medicines. By Aulton M E and Taylor K G. 5 th edition. 2018
Electronic References, Websites	**https://www.fda.gov/drugs**

1. Course Name:
Pharmaceutical biotechnology
2. Course Code:
3. Semester / Year:
2nd semester /5th stage
4. Description Preparation Date:
10th/may /2024
5. Available Attendance Forms:
On campus
٦. Number of Credit Hours (Total) / Number of Units (Total)
1 hour /1 unit

٧. Course Administrator's Name (Mention All, If More Than One Name)	
Name: Assist prof. dr Ahmed Nagem Abood	Email: ahmed.abood@uobasrah.edu.iq

8. Course Objectives	
Course Objectives	**Knowledge about biotechnology** **Determination of the role of biotechnology in development of an active pharmaceutical product**

9. Teaching and Learning Strategies	
Strategy	In class lectures Group discussions Pre-class assignments

10. Course Structure

Week	Hours	Required learning outcomes	Unit or Subject Name	Learning Method	Evaluation Method

1	**1 lecture**	**Definition of biotechnology and its development with time Knowing the main resources used in biotechnology to produce pharmaceutical agent Get knowledge about monoclonal antibodies, therapeutic protein and rDNA Knowledge about steps involved in production of biotech product Detection of pharmacist role in this field Compare among biotech product of different type**	**Introduction**	**Class lecture Group discussion**	**In class quizzes Examinations**
2-4	**4 lecture**	**study the microbial consideration-sterility-pyrogen viral decontamination Excipients of parentral products solubility enhancer-anti adsorption agents buffer components-preservatives and osmotic agents involved in formulation of biotech product**	**Formulation of biotechnology product (biopharmaceutical consideration)**	**Class lecture Group discussion**	**In class quizzes Examinations**

5-10	**5 lectures**	**Knowledge about different route used to administer biotech product oral, parentral, nasal-pulmonary-rectal-buccal and transdermal**	**Route of administration**	**Class lecture Group discussion**	**In class quizzes Examinations**
10-13	**3 lecture**	**Learn about the steps involved in metabolism and Elimination of proteins(proteolysis-excretion metabolism**	**Pharmacokinetics of peptide and protein**	**Class lecture Group discussion**	**In class quizzes Examinations**
13-15		**Final exam**			

11. Course Evaluation
20% mid term exam 10% in class evaluation 70 % final exam

12. Learning and Teaching Sources	
Required Textbooks (Curricular Books, If Any)	
Main References (Sources)	**pharmaceutical biotechnology J . A . Crommelin , Robert D. Syinder**
Recommended Books and References (Scientific Journals, Reports...)	
Electronic References, Websites	

Academic Program Description Form

University Name: **Basrah**

Faculty/Institute: **College of Pharmacy**

Scientific Department: **Clinical Pharmacy**

Academic or Professional Program Name: .....

Final Certificate Name: .....

Academic System: .....

Description Preparation Date:

File Completion Date: / / 2024

Signature:

Head of Department Name:

Assist prof. Dr. Ali Mohammed Hadi

Date:

Signature:

Scientific Associate Name:

Dr. Karmallah Shakir Mahmud

Date:

The file is checked by:

Department of Quality Assurance and University Performance

Director of the Quality Assurance and University Performance Department:

Dr. Rana Hasan Shamki

Date:

Signature:

UNIVERSITY OF BASRAH
COLLEGE OF PHARMACY

Approval of the Dean

This academic program description provides a summary of the most important features of the program and the learning outcomes that the student is expected to achieve, demonstrating the most of the opportunities available. It is accompanied by a description of each course within the program

University of Basrah	Academic Institution .1
College of Pharmacy	Department/Center .2
Clinical Pharmacy	Academic Program .3
Bachelor's of Pharmacy	The Final certificate .4
2024-2023/Course	Studying System .5 Annual/ Course/ others
Underway	Accredited .6 accreditation program
Teaching laboratories, hospital training, and Theoretical lectures	other affected ways .7
2024	Date .8

9 .Goals of Academic Program

1 -Make the graduated student able to read prescriptions
2 -Ability to communicate with patients
3 -make the student to educate the patients about their diseases and medications
4 -To make the graduate student able to follow up on medical cases and therapeutic errors that may occur as a result of the incorrect use of medications inside and outside the hospital and treat them within the approved pharmaceutical contexts in such cases
5 -Determining drug doses and following them up within the approved pharmaceutical calculations in therapeutic drug monitoring in hospitals and health centers in Iraq

10 .Outcomes of the program and the ways for teaching, education, and evaluation
a- Cognitive objectives 1- To be able to read and dispense medical prescriptions 2- To be able to communicate with the patient 3- To be able to educate the patient regarding their medications 4 -To be able to dispense medications correctly 5-To be able to determine doses using therapeutic drug monitoring 6- Enabling students to acquire and understand communication skills and medical ethics 7-Enabling students to acquire and understand pharmacoeconomics and pharmacokinetics
b- Skills objectives of the program 1- Enabling students to possess the skills of verbal and non-verbal communication with patients 2- Patient drug education skills 3- Pharmacoeconomics skills in determining the financial costs of therapeutic programs for the patient 4-Patient monitoring and medication follow-up skills 5-Enabling students to learn how to dispense medicines and drugs to patient 6-Enabling students to acquire medication preparation skills according to specific medical conditions diagnosed by a doctor 7-Enabling students to possess the skills of preparing pharmaceutical dose 8- Enabling students to possess the skills to diagnose medical errors for the dispensing medications 9- Enabling students to read and interpret all medical and pharmaceutical terms and symbols 10- Enabling students to possess the skills of using scientific research tools in the academic and scientific fields 11- Enabling students to acquire the skills of dialogue, discussion, listening to others and accepting their opinions 12- Enabling students to acquire self-learning skills to acquire new information, skills and knowledge

Methods of learning:

1- Seminars
2- Educational laboratories
3- Hospital training
4- Lectures
5- Cases discussion

Evaluation methods

1- Daily quizzes
2- Oral examinations
3- Groups discussions
4- OSCE [learning rapid case diagnose and managements]
5- Mid-term exam
6- Final exam

C- Valuable goals.

1. Educating students on professional humanitarian work, promoting and consolidating professional and ethical values among students to practice the profession of pharmacist.
2. Raising students on the culture of integrity and fighting corruption in all its forms
3. Training students to respect the rights of the beneficiaries of their profession, their culture, religion, gender, and race, and training students to respect the freedom of thought, expression, and creativity of others.
4. Developing students' sense of responsibility during the study period and during work, and enhancing the spirit of cooperation and teamwork among students.
5. Supports drug culture among students and community members

Teaching and Learning methods

1- Using a strategy of cooperation and assistance during the education process

2- Field visits to relevant ministries and educational institutions

3- Holding seminars, courses and workshops for students that encourage spiritual values

4- Form a discussion group during the lecture

Evaluation methods

Discussions in m small groups, quizzes, oral and written exam, polls

d- Transferable general and qualifying skills (and other skills related to employability and personal development)

1 . Be able to work in private pharmacies

2. Be able to work in hospitals and health centers related to the Ministry of Health and being in charge of.

3-Be able to participate in pharmaceutical advertisement

4-Be able to work in different departments related to Ministry of Health, like pharmacovigilance centers,

11 .program units

المرحلة الدراسية	رمز المقرر أو المساق	اسم المقرر أو المساق	الساعات المعتمدة	
			نظري	عملي
الثالث		الاخلاق الطبية	1	
الرابع		الصيدلة السريرية1	2	2
الرابع		الصيدلة السريرية 2	2	2
الرابع		الصحة العامة	2	
الرابع		مهارات التواصل	2	
الخامس		العلاجات1	3	
الخامس		العلاجات 2	2	
الخامس		تدريب مستشفيات	2	
الخامس		اقتصاديات الدواء	2	
الخامس		المناطرة الدوائية	2	2

12 .Personal building

1- Participation in training courses held within the college under the supervision of the Rehabilitation and Employment Unit

2- Participation in the professional courses held at the college within the prescribed curriculum, aswell as the professional education courses held at the Pharmacists Syndicate after graduation, which helps in developing the graduate's personal skills within the professional and functional aspect.

13. Admission criteria: Establishing regulations related to admission to the college or institute
This is done according to the acceptance rate in the medical group (Faculty of Pharmacy) within the electronic form approved by the Ministry of Higher Education and Scientific Research.
14 . Important Program references
1-Robert S. Beardsley, (ed.); Communication Skills in Pharmacy Practice, 5th edition. -1Robert J. Cipolle, Linda M. Strand, Peter C. Morley. Pharmaceutical Care Practice: The Clinician's Guide, 2nd Edition. **2- Robert m. Veatch and Amy Haddad. Case Studies in Pharmacy Ethics. second edition. Copyright © 2008 by Oxford University Press, Inc.** **3-ALISON BLENKINSOPP, PAUL PAXTON (eds), Symptoms in the Pharmacy. A Guide to the Management of Common Illness, 6th edition.** **4- Roger Walker, Clive Edwards (eds), Clinical Pharmacy & Therapeutics** **5-Reference Text: Roger Walker, Clive Edwards (eds), Clinical Pharmacy & Therapeutics.2012** **Barbara G.Wells & Joseph T. Diriro, Pharmacotherapy hand book 7th Edittion.** **6- Drummond MF, O'Brien B, Stoddart GL, Torrance GW. Methods for the economic evaluation of health care programmes. 3rd ed. Oxford: Oxford University Press, 2005.** **7- Applied Clinical Pharmacokinetics, Second Edition, 2008 by Larry A. Bauer.**

Program skills diagram

Put a sign for each outcome of each item

اسم المقرر	Essential Or	Outcome of learning in program																			
		الأهداف المعرفية					الأهداف المهاراتية الخاصة بالبرنامج					الأهداف الوجدانية والقيمية					المهارات العامة والتأهيلية المنقولة) المهارات الأخرى المتعلقة بقابلية التوظيف والتطور الشخصي(				
		أ1	أ2	أ3	أ4	أ5	ب1	ب2	ب3	ب4	ب5	ج1	ج2	ج3	ج4	ج5	د 1	د 2	د3	د4	د5
مهارات التواصل	اساسي		√					√										√			
اخلاقيات الصيدلة	اساسي			√					√										√		
الصيدلة السريرية 1	اساسي				√					√										√	
الصيدلة السريرية 2	اساسي				√					√										√	
الصحة العامة	اساسي				√					√											
العلاجات 1	اساسي					√					√										√
العلاجات 2	اساسي					√					√										√
تدريب مستشفيات	اساسي					√					√										√
مناطرة دوائية	اساسي					√					√										√
اقتصاد دوائي	اساسي					√					√										√

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

educational institution	College of pharmacy
department .	Clinical pharmacy
course name/	Communication skills
attendance	Daily attendance
sesson\year-	2nd semester\2023-2024
total hours	2hrs*15 weeks=30 weeks
date	2024

8.course goals

1 -To make the graduate student able to communicate with patients and use all available capabilities to communicate with the patient as well as with doctors during the stages of medical treatment.

2- To make the graduate student capable of educating patients regarding the medications used by them, including the medication instructions given to them, and overcoming all difficulties and obstacles that hinder these instructions from reaching them.

9- outcome of learning unit

a- Knowledge goals

1-To be able to communicate with the patient and medical staff during the treatment stages

2- To be able to educate the patient regarding the medications given to them.

3- To be able to overcome the difficulties and obstacles that hinder communication and drug education for patients and medical staff participating in the treatment stages.

4- To be able to educate the patient regarding medications

5- To be able to dispense medications correctly

6- Understand the medical communications skills

. b-skills goals

1- Increasing communication skills with patients and medical staff during the treatment stages

2- Increasing drug education skills for patients

3- Increasing the skills of making the right decisions in giving correct drug consultations to patients and overcoming all obstacles that hinder the process of communication and drug education for patients and cooperating with the medical staff participating in the treatment stages.

4- Enabling students to learn how to dispense medication to patients

5- Enabling students to acquire self-learning skills to acquire new information, skills and knowledge

6- Enabling students to acquire medication preparation skills according to medical conditions diagnosed by a doctor

7-Enabling students to possess the skills to diagnose medical errors in dispensing medications

8- Enabling students to read and interpret all medical and pharmaceutical terms and symbols

9- Enabling students to possess the skills of using scientific research tools in the academic and scientific fields

10- Enabling students to acquire the skills of dialogue, discussion, listening to others and accepting their opinions

Learning and educational methods

1- Seminars
2- Lectures
3- Cases presentation

Evaluation methods

1- Daily quizzes
2- Oral exams
3- Mid-term exam
4- Final exam

c-Sentimentality goals

1- Developing students' sense of belonging to and loyalty to the homeland
2- Raising students to respect human dignity
3- Raising students on humanitarian and professional work
4- Promoting and consolidating professional and ethical values among students practicing the profession of pharmacist
5- Raising students on the culture of integrity and fighting corruption in all its forms
6- Training students to respect the rights of those driven by their profession, culture, religion, gender, and custom.
7- Training students to respect the freedom of thought, expression, and creativity of others
8- Developing students' sense of responsibility during the period of study and work
9- Supporting pharmaceutical culture among students and community members
10- Enhancing the spirit of cooperation and teamwork among students

Educational and learning methods

1 -using cooperative and assistance during teaching
2 -live visits into institutions with relate to

3 -symposium and training programs should apply to develop cooperative senses
4 -small discussion groups through class were made

d- - General and qualifying transferable skills (other skills related to employability and personal development)

1 -Can work in private pharmacies.
2-be able to in charge and responsible in hospitals, medical centers and pharmacies belonged to Ministry of Health

Theoretical Contents **Laboratory Work**

Theoretical Contents **Laboratory Work**

Patient-Centered Communication in Pharmacy Practice

Principles and Elements of Interpersonal Communication

Nonverbal type of communication.

Barriers to communication.

Listening and empathic responding during communication.

Assertiveness.

Interviewing and assessment.

Helping patients to manage therapeutic regimens.

Patient counseling; counseling check list; point-by-point discussion;counseling scenario.

Medication safety and communication skills.

Strategies to meet specific needs.

Communicating with children and elderly about medications.

Communication skills and inter-professional collaboration.

Electronic communication in healthcare.

Ethical behavior when communicating with patients.

Websites, PowerPoints	References like reports, data
Nill	Specific electronic site

13 .improvement of course
There are suggestions regarding integrating this subject into community pharmacy topics within the curricula that will be taught to students of the third stage/second course to benefit from it in the practical application of pharmacy training during the summer period.

course description

educational institution	College of pharmacy
department .	Clinical pharmacy
course name/	Pharmaceutical ethics
attendance	Daily attendance
sesson\year-	2nd semester\2023-2024
total hours	2hrs*15 weeks=30 weeks
date	2024

course goals

1- Make the graduate student able to communicate with patients and use all available capabilities to communicate with the patient as well as with doctors during the stages of .medical treatment

2- To make the graduate student capable of educating patients regarding the medications used by them, including the medication instructions given to them, and overcoming all difficulties .and obstacles that hinder these instructions from reaching them

Course outcomes for learning

a- Knowledge goals

1- To be able to communicate with the patient and medical staff during the treatment stages

2- To be able to educate the patient regarding the medications given to them.

3- To be able to overcome the difficulties and obstacles that hinder communication and drug education for patients and medical staff participating in the treatment stages.

4- Enabling students to acquire and understand communication skills and medical ethics

b-skills goals

1-Increasing communication skills with patients and medical staff during the treatment stages
2- -Increasing drug education skills for patients
3- Increasing the skills of making the right decisions in giving correct drug consultations to patients and overcoming all obstacles that hinder the process of communication and drug education for patients and cooperating with the medical staff participating in the treatment stages.
4- Enabling students to acquire the skills of dialogue, discussion, listening to others and accepting their opinions
5- Enabling students to acquire self-learning skills to acquire new information, skills and knowledge

Educational methods

seminars
lectures
Discussions inside lectures

Evaluation methods

1- Daily quizzes
2- Oral exams
3- Mid-term exam
4- Final exam

c-Sentimentality goals

1- Developing students' sense of belonging to and loyalty to the homeland
2- Raising students to respect human dignity
3- Raising students on humanitarian and professional work
4- Promoting and consolidating professional and ethical values among students practicing the profession of pharmacist
5- Training students to respect the rights of those motivated by their profession, culture, religion, gender, and custom.
6- Training students to respect the freedom of thought, expression, and creativity of others
7- Developing students' sense of responsibility during the period of study and work
8- Supporting pharmaceutical culture among students and community members

Enhancing the spirit of cooperation and teamwork among students

Educational and learning methods

1- examples during lectures

2- videos, pictures, and examples from life

Evaluation methods
Discussions Exams (mid-term and final) Oral examination

Theoretical contents	Laboratory works	Notes
Introduction to Pharmacy Ethics (Theoretical considerations).		1 hr
Code of Ethics for Pharmacists.		3 hrs
Common Ethical Considerations in Pharmaceutical Care Practice (Beneficence, Autonomy, Honesty, Informed Consent, Confidentiality, Fidelity ……).		2 hrs
Interprofessional Relations.		1 hr
Making ethical decisions.		1 hr
Ethical issues related to clinical pharmacy research.		1 hr
Ethical problems in the pharmacist's clinical practice.		1 hr
Preventing misuse of medicines.		3 hrs
Case studies in pharmacy ethics.		1 hr

Refernces	
Robert J. Cipolle, Linda M. Strand, Peter C. Morley. Pharmaceutical Care Practice: The .Clinician's Guide, 2nd Edition Robert m. Veatch and Amy Haddad. Case -2 Studies in Pharmacy Ethics. second edition. Copyright © 2008 by Oxford University Press, Inc	

educational institution	College of pharmacy
department .	Clinical pharmacy
course name/	Clinical pharmacy I
attendance	Daily attendance
sesson\year-	1st semester\2023-2024
total hours	2hrs*15 weeks=30 weeks
date	2024

Course goals

1- Make the graduate student able to communicate with patients and use all available capabilities to communicate with the patient as well as with doctors during the stages of medical treatment.

2- To make the graduate student capable of educating patients regarding the medications used by them, including the medication instructions given to them, and overcoming all difficulties and obstacles that hinder these instructions from reaching them.

course outcomes
a-Knowledge goals 1- To be able to communicate with the patient and medical staff during the treatment stages 2- To be able to educate the patient regarding the medications given to them. 3- To be able to overcome the difficulties and obstacles that hinder communication and drug education for patients and medical staff participating in the treatment stages. 4- To be able to read and dispense medical prescriptions 5- To be able to educate the patient regarding medications 6- To be able to dispense medications correctly
b-skills goals 1- Increasing communication skills with patients and medical staff during the treatment stages 2- Increasing drug education skills for patients 3 Increasing the skills of making the right decisions in giving correct drug consultations to patients and overcoming all obstacles that hinder the process of communication and drug education for patients and cooperating with the medical staff participating in the treatment stages. 4 Enabling students to learn how to dispense medication to patients 5 Enabling students to acquire self-learning skills to acquire new information, skills and knowledge 6 Enabling students to acquire medication preparation skills according to medical conditions diagnosed by a doctor 7 Enabling students to possess the skills of preparing pharmaceutical doses 8 Enabling students to possess the skills to diagnose medical errors in the use and dispensing of medications 9 Enable students to read and interpret all medical and pharmaceutical terms and symbols 10 Enabling students to possess the skills of using scientific research tools in the academic and scientific fields 11 - Enabling students to acquire the skills of dialogue, discussion, listening to others and accepting their opinions
Educational and learning methods
1- seminars 2- case discussions 3- case presentations 4- lectures

Evaluation methods
b- Sentimentality goals 1. -Raising students to respect human dignity 2. Raising students on humanitarian and professional work 3. -Promoting and consolidating professional and ethical values among students practicing the profession of pharmacist 4. Training students to respect the freedom of thought, expression, and creativity of others 5. -Developing students' sense of responsibility during the period of study and work 6. -Supporting drug culture among students and community members 7. Enhancing the spirit of cooperation and teamwork among students
Educational and learning methods
Lectures Case discussions Presenting cases, drugs, pharmacies contents Allow students to discuss cases
Evaluation methods
Oral exams Quizzes Cases discussions Mid-term Final exam

Week	Theoretical Contents	Laboratory Work	Notes
1	Introduction to community pharmacy.	Communication with patients.	2hrs
2	Respiratory problems: Cough, Common cold, allergic rhinitis, Otitis media, Laryngitis & Pharyngitis	Respiratory system in practice (part I): Cough.	2hrs
3	G.I.T problemse: Diarrhea, Constipation, Heart burn and indigestion, IBS and Hemorrhoids	Respiratory system in practice (part II): Common cold.	2hrs
4	Pediatric care practice : Oral thrush, pinworms and head lice	G.I.T system in practice (part I): Constipation.	2hrs
5	Skin conditions: Acne, Scabies, Psoriasis, Hair loss, Fungal infection, Eczema and Dermatitis , Dandruff, Cold sore, Corns and Callus.	G.I.T system in practice (part II): Diarrhea and IBS.	2hrs
6	Women's health care: Cystitis and vaginal thrush, primary dysmenorrhea and Premenstrual syndrome.	GIT system in practice (part III): GERD& indigestion.	2hrs
7	CNS related problems: Headache, Insomnia, Motion sickness, Nausea and vomiting	Skin conditions in practice (part I): Hair loss; cold sore and athlete's foot.	2hrs
8	- Eye problems	Skin conditions in practice (part II): Dandruff, Eczema and mouth ulcer.	2hrs
9	ENT problems	Skin conditions in practice (part III): warts and scabies.	2hrs
10	Oral hygiene, mouth ulcer	Pediatrics in practice: Oral thrush; colic; pinworm and napkin rash.	2hrs
11	Obesity and body weight control.	Minor eye disorders in practice.	2hrs
12	- Pain and musculoskeletal disorders	CNS system: Insomnia, motion sickness, obesity and nicotine replacement therapy (NRT).	2hrs
13	Nicotine replacement therapy (NRT).	Drug Information sources for pharmacist.	2hrs
14	Dietary supplements	An update in reclassification of OTC drugs.	2hrs
15	An update in reclassification of OTC drugs (simvastatin, Tamusotisin & azithromycin).	Collective practice.	2hrs
16	Medication adherence and errors.		2hrs

11. البنية التحتية

References	Reference Text: ALISON BLENKINSOPP, PAUL PAXTON (eds), Symptoms in the Pharmacy. A Guide to the Management of Common Illness, 6th. edition Lor waterfield, Community Pharmacy Hand Book, 5th edition

developing programs goals
It is the intention to introduce new topics into clinical pharmacy curricula, especially those related to community pharmacy in terms of how the pharmacist deals with common diseases in society and how to treat them and give medication instructions about them, and to study them within the curricula of the second course for third-year students to benefit from them in the .subject of summer training for the pharmacy training subject

وصف المقرر

educational institution	College of pharmacy
department .	Clinical pharmacy
course name/	Clinical pharmacy I
attendance	Daily attendance
sesson\year-	2nd semester\2023-2024
total hours	2hrs*15 weeks=30 weeks
date	2024

Weekly Schedule			
	Theoretical Contents	**Laboratory Work**	**Notes**
1	Introduction to the concept of clinical pharmacy- its activities and professional responsibilities. (Including current state of clinical pharmacy in Iraq).	Communication with physician and patient counseling.	2hr
2	an overview of pharmaceutical care practice (the patient care process).	Drugs for anemia and related disorders.	2hr
3	Hematologic disorders: Anemia and sickle cell disease.	Cardiovascular drugs in practice part I: diuretics, β_ blockers, ACE-inhibitors and Ag II receptor blockers.	2hr
4	Hypertension.	Cardiovascular drugs in practice part II: nitrates, Ca^{2+}-channel blockers, α-blockers, and anti-hyperlipidemic drugs.	2hr
5	Ischemic heart diseases	Drugs for asthma and COPD in practice.	2hr
6	Heart failure.	Antimicrobial drugsin practice part I: β- lactam antibiotics, tetracyclines and aminoglycosides.	2hr
7	Peripheral vascular diseases.	Antimicrobial drugs in practice part II: macrolides, sulphonamides, quinolones, and other miscellaneous antibiotics.	2hr
8	- Asthma.	Antimicrobial drugs in practice part III: antivirals and antifungals.	2hr
9	Chronic obstructive pulmonary disease (COPD).	Drugs for endocrine system part I (Diabetes Mellitus).	2hr
10	Diabetes mellitus & Diabetic ketoacidosis (DKA) .	Drugs for endocrine system part II: thyroid disorders, corticosteroids, and hormones used in gynecological disorders.	2hr

11	Peptic ulcer disease.	Drugs acting on CNS (antimigraine drugs, analgesics and antiemetics) and musculoskeletal disorders (NSAIDS and bisphosphonates).	2hr
12	Tuberculosis	Drugs for GI disorders: peptic ulcer disease and inflammatory bowel disorders.	2hr
13	Infective meningitis	Drugs for ENT and skin disorders.	2hr
14	Respiratory tract infections	Contraception.	2hr
15	GIT infections	Collective practice.	2hr
16	Gout and hyperuricemia		2hr
17	Rheumatoid arthritis (RA) and osteoarthritis (OA)		2hr
18	Osteoporosis and other metabolic bone disease.		2hr
19	Infectious Endocarditis		2hr
20	Surgical antibiotic prophylaxis		2hr
21	Urinary tract infection (UTI)		2hr

course description

educational institution	College of pharmacy
department .	Clinical pharmacy
course name/	Therapeutic I
attendance	Daily attendance
sesson\year-	2nd semester\2023-2024
total hours	2hrs*15 weeks=30 weeks
date	2024

8- Course objectives

1- The course aims to identify the various pathological conditions, their definition, causes, methods of diagnosis, then therapeutic methods and groups of medications used in treatment.

2- Make the graduate student able to identify pathological conditions found in the patient's tympanum

3- Make the graduate student able to communicate with patients in outpatient clinics for general diseases

4- Make the graduate student capable of educating patients regarding the medications they use

5- Make the graduate student able to match incorrect therapeutic methods

With what is found in proven sources

a- Knowledge goals

1- To be able to identify pathological conditions recorded in the patient's tympanum

2- 2- To be able to communicate with the patient in outpatient clinics for general diseases

3- To be able to educate the patient regarding medications

4- To be able to match incorrect therapeutic methods with what is found in proven sources

b- Skills goals

1 - Skills to identify new alternative medicines

2 - Skills to determine the most important goal of treating common diseases

3- Enabling students to possess the skills of diagnosing cases of medical errors in the use and dispensing of medications.

4- Enabling students to possess the skills of using scientific research tools in the academic and scientific field.

5- Enabling students to acquire self-learning skills to acquire new information, skills and knowledge

Educational method

Lectures

Discussion of documented cases

Evalution methods

Oral exams

Mid-term and final exams

C- Sentimentality goals

1- Developing students' sense of belonging to and loyalty to the homeland

2- Raising students to respect human dignity

3- Raising students on humanitarian and professional work

4- Promoting and consolidating professional and ethical values among students practicing the profession of pharmacist

5- Raising students on the culture of integrity and fighting corruption in all its forms

6- Training students to respect the rights of those driven by their profession, culture, religion, gender, and custom.

7- Training students to respect the freedom of thought, expression, and creativity of others

8- Developing students' sense of responsibility during the period of study and work

9- Supporting drug culture among students and community members

10- Enhancing the spirit of cooperation and teamwork among students

Educational methods
1- lectures 2- case discussions 3- present examples and cases through lectures
طرائق التقييم **Quizzes** **Mid-term exams** **Final exams**

.General skills (for employement)

1- To be more capable of working in research on therapeutic methods that achieve the goal better

2- To be able to work in the hospital’s pharmacy and specialized lobbies

Weekly Schedule			
	Theoretical Contents	**Laboratory Work**	**Notes**
1	Interpretation of Lab. data.		2
2	Acute coronary syndrome.		2
3	Arrhythmias		2
4	Thrombosis		2
5	Dyslipidemia		1
6	Stroke		1
7	Shock		2
8	Liver cirrhosis		2
9	Viral hepatitis		1
10	Inflammatory bowel diseases		2
11	Acute renal failure (ARF)		1
12	Chronic renal failure (CRF)		2
13	Hemodialysis and peritoneal dialysis		1
14	Systemic lupus erythematosis (SLE)		1
15	Benign prostatic hyperplasia (BPH)		1
16	Acid – base disorders		2
17	Disorders of fluid and electrolytes		2
18	Urinary incontinence and pediatric enuresis		1
19	Epilepsy and status epilepticus		2
20	Fungal infections		1
21	Parkinson's disease		2
22	Pain management		1
23	Headache disorders		1
24	Tobacco use and dependence		1
25	Parasitic infections		1
26	Viral diseases		1
27	Parenteral nutrition		1

28	Enteral nutrition		1
29	Evidence-based pharmacy practice and medicine.		1
30	Drug distribution systems		2
31	Pharmacovigilance		2

Roger Walker, Clive Edwards (eds), Clinical Pharmacy & Therapeutics.2012	Books and refernces
- Barbara G.Wells & Joseph T. Diriro, Pharmacotherapy hand book 7th Edittio	Main refernces

Refernces	
Ba rbara G.Wells & Joseph T. Diriro, Pharmacotherapy hand book 10th Edittio	1- الكتب المقررة المطلوبة

Weekly Schedule			
	Theoretical Contents	**Laboratory Work**	**Notes**
1	Thyroid and parathyroid disorders		2 hr
2	Contraception		1 hr
3	Endometriosis		1 hr
4	Menstruation related disorders		1 hr
5	Hormonal replacement therapy (HRT)		1 hr
6	Cancer treatment and chemotherapy		2 hr
7	Leukemia's		2 hr
8	Lymphomas and Multiple myeloma		2 hr
9	HSCT(Hematop. Stem- cell-Transplantation).		1 hr
10	Breast and prostate cancers		2 hr
11	Adverse effects of chemotherapy		1 hr
12	Human immunodeficiency virus		1 hr
13	Multiple sclerosis		1 hr
14	Adrenal gland disorders		1 hr
15	Pituitary gland disorders		1 hr
16	Glaucoma		1 hr
17	Alzheimer's disease		1 hr
18	Schizophrenia		2 hr
19	Depressive disorders		2 hr
20	Anxiety disorders		1 hr
21	Sleep disorders		1 hr
22	Bipolar disorders		1 hr
23	Adverse drug reactions		1 hr
24			

educational institution	College of pharmacy
department .	Clinical pharmacy
course name/	Therapeutic drug monitoring
attendance	Daily attendance
sesson\year-	2nd semester\2023-2024
total hours	2hrs*15 weeks=30 weeks With 1 hr laboratory
date	2024

Course goals

1- make the students capable to calculate the specific dosing regimens for specific cases like renal or hepatic failure

2- adjustment dosing for cases needed more than one drug regimen

3- educate the students how to deal with specific dosing or rare cases

A- Cognitive objectives
A1- To be able to communicate with the patient and the medical staff during the treatment stages.
A2- To be able to educate the patient regarding the medications given to them.
A3- To be able to overcome the difficulties and obstacles that hinder communication and drug education for patients and medical staff participating in the treatment stages.
A4- To be able to determine doses using medication monitoring
A5- Enabling students to acquire and understand pharmacoeconomics and pharmaceutical management

A6 Able to read and fill prescriptions
A7- To be able to communicate with the patient
A8- To be able to educate the patient regarding medications
A9- To be able to dispense medications correctly

B - The skills objectives of the course.

B1 - Increasing communication skills with patients and medical staff during the treatment stages. B2 - Increasing drug education skills for patients

B3- Increasing the skills of making the right decisions in giving correct drug consultations to patients and overcoming all obstacles that hinder the process of communication and drug education for patients and cooperating with the medical staff participating in the treatment stages.

B4- Patient medication monitoring and follow-up skills

B5- Enabling students to acquire the skills of preparing medicine according to medical conditions diagnosed by the doctor. B6- Enabling students to possess the skills of using scientific research tools in the academic and scientific field. B7- Enabling students to acquire the skills of dialogue, discussion, listening to others, and accepting their opinions.

B8- Enabling students to acquire self-learning skills to acquire new information, skills and knowledge

Educational methods

Seminars
Lectures
Problem solving
presentations

Evaluation methods

Daily quizzes

Mid-term and final exams

c-Sentimentality goals

1- Raising students to respect human dignity

2- Raising students on humanitarian and professional work

3- Promoting and consolidating professional and ethical values among students practicing the profession of pharmacist

4- Raising students on the culture of integrity and fighting corruption in all its forms

5- Training students to respect the freedom of thought, expression, and creativity of others

6- Developing students' sense of responsibility during the study period and work

7- Supporting drug culture among students and community members

Weekly Schedule			
	Theoretical Contents	**Laboratory Work**	**Notes**
1	Course Overview	Practical work for:	
2	Review of basic pharmacokinetic (PK)-	Review of basic pharmacokinetic (PK)-	2hr
3	Review of basic pharmacodynamics (PD)	Review of basic pharmacodynamics (PD)	1hr
4	Clinical PK equations and calculations	Clinical PK equations and calculations	3hr
5	Clinical PK in special population and cases	Clinical PK in special population and cases	3hr
6	Clinical PK/PD for Antibiotics (e.g., Aminoglycosides, Vancomycin	Clinical PK/PD for Antibiotics (e.g., Aminoglycosides, Vancomycin	4hr
7	Clinical PK/PD for Cardiovascular agents (e.g., Digoxin, Lidocaine, Procainamide/N-Acetyl Procainamide	Clinical PK/PD for Cardiovascular agents (e.g., Digoxin, Lidocaine, Procainamide/N-Acetyl Procainamide	4hr
8	Clinical PK/PD for Anticonvulsants (e.g., Phenytoin, Carbamazepine, Valproic Acid, Phenobarbitone/Primidone, Ethosuxsimide	Clinical PK/PD for Anticonvulsants (e.g., Phenytoin, Carbamazepine, Valproic Acid, Phenobarbitone/Primidone, Ethosuxsimide	6hr
9	Clinical PK/PD for Immunossprasants (e.g., Cyclosporine, Tacrolimus	Clinical PK/PD for Immunossprasants (e.g., Cyclosporine, Tacrolimus	2hr
10	Clinical PK/PD of other drugs (e.g., Lithium, Theophylline, Anticancer agents, Anticoagulats	Clinical PK/PD of other drugs (e.g., Lithium, Theophylline, Anticancer agents, Anticoagulats	4hr

Reference Text: Roger Walker, Clive Edwards (eds), Clinical Pharmacy & Therapeutics.2012 **Barbara G.Wells & Joseph T. Diriro, Pharmacotherapy hand book 7th Edittion**.	Refernces

development olan
The intention is to develop the capabilities of graduating students to be fully aware of drug management topics through: They worked on devices used in hospitals for the purpose of following up on treatment after it was taken by patients lying in the hospital lobbies. There is a drug monitoring center in Baghdad Medical City Hospital, which is currently the only one in Iraq.

educational institution	College of pharmacy
department .	Clinical pharmacy
course name/	pharmacoeconomics
attendance	Daily attendance
sesson\year-	2nd semester\2023-2024
total hours	2hrs*15 weeks=30 weeks With 1 hr laboratory
date	2024

Course goals

1- understand the advantage of economic evaluation of pharmaceutical products and how to apply in life

2- try to choose the best intervention (new drug, building hospital, or any services for health institutions) with the lowest budgets to get the best advantages presenting to patients

course outcomes

a- Knowledge goals

1- try to understand pharmacoeconomics

2- try to apply the knowledge of pharmacoeconomics on daily life to get best results

b-skills goals

B1- Increasing the skills of making the right decisions in giving correct drug consultations to patients and overcoming all obstacles that hinder the process of communication and drug education for patients and cooperation with the medical staff participating in the treatment stages
B2- Pharmacoeconomics skills in determining the financial costs of therapeutic programs for the patient.
B3- Enabling students to possess the skills of using scientific research tools in the academic and scientific field

Educational and learning methods

1- lectures
2- cases presentations
3- calculate problems
4- examples presenting

Evaluation methods

1- quizzes
2- mid-term exam
3- final exam

c-Sentimentality goals

1- Developing students' sense of belonging to and loyalty to the homeland
2- Raising students to respect human dignity
3- Raising students on humanitarian and professional work
4- Promoting and consolidating professional and ethical values among students practicing the profession of pharmacist
5- Raising students on the culture of integrity and fighting corruption in all its forms
6- Training students to respect the rights of those driven by their profession, culture, religion, gender, and custom.
7- Training students to respect the freedom of thought, expression, and creativity of others
8- Developing students' sense of responsibility during the period of study and work
9- Supporting drug culture among students and community members
10- Enhancing the spirit of cooperation and teamwork among students

Weekly Schedule			
	Theoretical Contents	**Laboratory Work**	**Notes**
1	Course overview, Changes in health care delivery, overview of pharmacoeconimics.		2 hr
2	Cost determination.		2 hr
3	Evaluation of outcomes and effectiveness, types of pharmacoeconomic analyses: Cost effectiveness analyses (CEA), cost minimization analyses (CMA).		2 hr
4	Methods of data collection and analyses, modeling (decision analyses).		2 hr
5	1st mid-term examination.		2 hr
6	Incremental analyses; case studies.		2 hr
7	Evaluation outcomes: Utility and quality of life; types of pharmacoeconomic analyses, cost utility analyses (CUA).		2 hr
8	Evaluation outcomes: Net benefit, cost utility analyses (CBA), compare and contrast CEA, CUA and CBA.		2 hr
9	Methods of data collection and analyses: Statistical/Econometric modeling.		2 hr
10	2nd mid-term examination.		2 hr
11	Drug-focused versus disease-focused frame work for conducting pharmacoeconomic analyses.		2 hr
12	Critical review of pharmacoeconomic and quality of life literature.		2 hr
13	Introduction to epidemiology.		2 hr
14	Project presentation.		2 hr
15	Project presentation.		2 hr

10course units
11. البنية التحتية
references -1 Drummond MF, O'Brien B, Stoddart GL, Torrance GW. Methods for the economic evaluation of health care programmes. 3rd ed. Oxford: Oxford University Press, 2005.

course prescription

educational institution	College of pharmacy
department .	Clinical pharmacy
course name/	Hospital training
attendance	weekly attendance
sesson\year-	Annual 2023-2024
total hours	5 hours*15 weeks=30 weeks
date	2024

Course goals
1. - Making the graduate student able to communicate with patients and use all available capabilities to communicate with the patient as well as with doctors during the stages of medical treatment..
2- To make the graduate student able to educate patients regarding the medications used by them, including the medication instructions given to them, and to overcome all the difficulties and obstacles that hinder these instructions from reaching them.

learning outcomes

a- Knowledge goals

1- To be able to communicate with the patient and the medical staff during the treatment stages.

2 - To be able to educate the patient regarding the medications given to him.

3- To be able to overcome the difficulties and obstacles that hinder communication and drug education for patients and medical staff participating in the treatment stages.

b- Skills goals

B1 - Increasing communication skills with patients and medical staff during the treatment stages

B2 - Increasing drug education skills for patients

B3- Increasing the skills of making the right decisions in giving correct drug consultations to patients and overcoming all obstacles that hinder the process of communication and drug education for patients and cooperating with the medical staff participating in the treatment stages.

B4- Enabling students to possess the skills of diagnosing cases of medical errors in the use and dispensing of medications.

B5- Enabling students to read and interpret all medical and pharmaceutical terms and symbols.

B6- Enabling students to acquire the skills of using scientific research tools in the academic and scientific field.

B7- Enabling students to acquire the skills of dialogue, discussion, listening to others, and accepting their opinions.

Eeducational methods

1- seminars
2- lectures
3- case discussions
5- hospital visiting to overcome presenting cases

Evaluation methods

1- case discussions
2- oral examinations
3- quizzes
4- mid-term and final exams

c-Sentimentality goals

1- Raising students to respect human dignity
2- Raising students on humanitarian and professional work
3- Promoting and consolidating professional and ethical values among students practicing the profession of pharmacist

4- Training students to respect the rights of those motivated by their profession, culture, religion, gender, and custom.
5- Developing students' sense of responsibility during the period of study and work

10 .course units: Hospital training					
Evaluation method	Education method	Subjects	Outcomes	hours	week
Exam (oral and written) Discussions in hospitals	Lectures Cases,	Cardiac disease, DM, Hepatic disorders, renal diseases,	Medicine dept	**10**	1
Exam (oral and written) Discussions in hospitals	Lectures Cases	Patient care pre- and post-operative, fluids, IV nutrition, appendicitis, hernia, diabetic foot, gall stone, DVT, breast cancer, renal stone	Surgical dept	**10**	2
Exam (oral and written) Discussions in hospitals	Lectures Cases	Abortion, DM and HT during pregnancy, thyroid disease, epilepsy, anemia, UTI during pregnancy, ectopic pregnancy, PCOS, endometriosis	Gynecological dept	**5**	3
Exam (oral and written) Discussions in hospitals	Lectures Cases	SOB, febrile convulsions, gastrointestinal disorders, nervous system disorders Jaundice and complications	Pediatric dept	**5**	4

وصف المقرر

educational institution	College of pharmacy
department .	Clinical pharmacy
course name/	Public health
attendance	daily attendance
sesson\year-	2nd semester 2023-2024
total hours	2 hours*15 weeks=30hours
date	2024

educational goals
Students acquire basic information in the field of public health
And pharmaceutical practice to rise to the required scientific level

c-Sentimentality goals
1- Raising students on professional humanitarian work
2- Promoting and consolidating professional and ethical values among students practicing the profession of pharmacist
3- Enhancing the spirit of cooperation and teamwork upon request
4- Training students to respect the freedom of thought, expression, and creativity of others
5- Developing students' sense of responsibility during the study period and during work

Educational methods
1- Discussing group work 2- Writing self-reports 3- Using a strategy of cooperation and assistance during the education process 4- lectures 5- case discussion
Evaluation methods 1- **quizzes to evaluate students level**
General skills (specially for employment) 1-follow-up newly references 2-follow-up new subjects from websites 3-solving problems and questions related to the studied subjects

طريقة التقييم	طريقة التعليم	اسم الوحدة / أو الموضوع /الممارسة الصيدلانية	اسم الوحدة / أو الموضوع /الصحة العامة	الساعات	الأسبوع
Quizzes, reports, homeworks	Scientific references, smart board	introduction	Introduction about public health	2	1
Quizzes, reports, homeworks	Scientific references, smart board	Pharmaceutical behaviours and health system I	epidemiology	2	2
Quizzes, reports, homeworks	Scientific references, smart board	Pharmaceutical behaviours and health system II	Disease control	2	3
Quizzes, reports, homeworks	Scientific references, smart board	Increase health culturs	Heath insurance	2	4
Quizzes, reports, homeworks	Scientific references, smart board	Pharmaceutical care introduction	GIT disorders	2	5
Quizzes, reports, homeworks	Scientific references, smart board	Planning and pharmaceutical care	Control on GIT disorders	2	6
Quizzes, reports, homeworks	Scientific references, smart board	Mid-term exam		2	8

Quizzes, reports, homeworks	Scientific references, smart board	Planning and pharmaceutical careII	Travelling and control disease transmission through mucous membrane	2	9
Quizzes, reports, homeworks	Scientific references, smart board	Pharmacy judgment	Air born infections	2	10
Quizzes, reports, homeworks	Scientific references, smart board	Hospital pharmacy services	Control on air born infections	2	11
Quizzes, reports, homeworks	Scientific references, smart board	Biological health in health institutions	Non-infectious disease (chronic disease)	2	12
Quizzes, reports, homeworks	Scientific references, smart board	Pharmaceutical prescriptionand control I	Health and genetic disorders	2	13
Quizzes, reports, homeworks	Scientific references, smart board	Pharmaceutical prescriptionand control I	Nutritional disturbance	2	14
Quizzes, reports, homeworks	Scientific references, smart board	True and acceptable use of drugs (I, II)	Vaccines manufacturing	2	15

12building units	
Lucas AO, Gilles HM, (Eds), Short Textbook of Public Health Medicine for the Tropic, (4th Ed), 2003 Lecture Notes in pharmacy practice, lilian M Azzopardi, 2010, pharmaceutical press, london	**Refernces**
	2- المراجع الرئيسية المصادر
Oxford Textbook of Global Public Health, Roger Detes,Martin Gulliford,Quarrisha Abdool Karim,etal.	**Need to be assistance with references**

Academic program description form

Educational institution: Ministry of Higher Education and Scientific Research

University name: University of Basra

College/Institute: pharmacy college

The branch Scientific: Pharmaceutical chemistry

Name of the academic or professional program: Sciences in pharmacy.

Name of final degree: Bachelor's degree Sciences in pharmacy

School system: quarterly

Description preparation date:……..

File filling date:……

Signature:

Head of Branch Name:

Dr. Leqaa Abdulredha Rahim

Date:

Signature:

Scientific Associate Name:

Dr. Karamallah Shakir Mahmud

Date:

Check the file before
Division of Quality Assurance and University Performance
Name of the Director of the Quality Assurance and University Performance Division:
Dr. Rana Hasan Shamki
the date
the signature

Authentication of the Dean

UNIVERSITY OF BASRAH
COLLEGE OF PHARMACY

1. See the program

Seeking college the pharmacy **That the branch be distinguished at the local, Arab and international levels as an institution with a high academic level by providing a high-quality level of education that produces understanding pharmacists and reaching a leadership position in the field of scientific research related to natural resources, establishing a pharmaceutical laboratory and a consulting office, and opening postgraduate studies to increase the expertise of college graduates, as well as On developing the teaching and administrative staff.**

2. Program message

The Pharmaceutical Chemistry Branch is one of the branches of the College of Pharmacy. It was established in 1999. The branch provides service to the college through teaching and scientific research to provide health institutions with pharmaceutical expertise and competencies and provide pharmaceutical consultations to state institutions.

3. Program Goals

9. Objectives of the academic program

Teaching pharmacy students subjects in pharmaceutical chemistry through an approved study plan, conducting research supported by the university and other parties outside the university in the field of specialization, cooperating with other parties in the field of providing pharmaceutical services, expertise and consultations, and attending conferences to enrich scientific research and acquire the necessary skills and expertise to develop this academic field.

The first stage

Chapter One: Analytical Chemistry

The first stage: In the first stage, the academic program focuses on intellectual skills and enhancing knowledge in the basic sciences that pave the way for pharmacy specialization. The first stage program also includes developing basic laboratory skills such as measuring weights and volumes, using laboratory tools, and performing the calculations required in later stages of study and within the work of the pharmacist.

Chapter Two: Organic Chemistry I

On its basis, the student studies organic chemistry, its theoretical foundations, and methods of separation and preparation.

The second stage Chapter One: Organic Chemistry II It studies organic chemical reactions and their mechanics. Chapter Two: Organic Chemistry **III** It studies organic cyclic compounds that are used in the pharmaceutical industry.
Third stage The academic program in the third stage represents the first level of specialization in pharmaceutical sciences by linking the chemistry of the drug, its natural and non-natural sources, its mechanism of action, and basic drug doses and their characteristics. Chapter One: Inorganic pharmaceutical chemistry Which is concerned with preparing medicines that contain inorganic compounds. Second semester: Pharmaceutical chemistry **I** It is interested in studying the chemical and physical properties of drugs, as well as the biological processes of drug metabolism (disintegration) in the body.
The fourth stage The academic program in the fourth stage focuses on the pharmacist's skills in dealing with patients in community and hospital pharmacy. These skills include intellectual skills, practical skills, behavioral and moral skills. Chapter One: Pharmaceutical Chemistry **II** Preparation, diagnosis and effectiveness of nervous system medications, analgesics and hormones. Second semester: Pharmaceutical chemistry **III** Preparing, diagnosing and studying the effectiveness of antibiotics and anti-cancer agents.
level five The academic program in the fifth and final stage is based on including an advanced level of knowledge in advanced pharmaceutical sciences related to drug chemistry and drug management. Chapter One: Pharmaceutical Chemistry**IV** It studies modern methods for preparing medicines and ways to increase their effectiveness and solve the problems of some medicines and base them on polymeric materials. Second chapter: Advanced pharmaceutical analysis. It studies the spectroscopic methods necessary to diagnose drugs in the laboratory as well as monitor them in the body.

4. **Program accreditation**
nothing

5. **Other external influences**
Practical part and seminars

6. **Program structure**

Program structure	Number of courses	Study unit	percentage	comments *
Enterprise requirements				
College requirements				
The requirements branch	10	36		
summer training				
Other				

* Notes may include whether the course is core or elective.

7. Program description					
Credit hours		**Name of the course or course**	**Course or course code**	**Seme ster**	**Year/level**
practical	**theor etical**				
1	3	Analytical Chemistry	113	F1	First stage
1	3	Organic Chemistry I	1210	F2	
1	3	Organic Chemistry II	211	F1	Second stage
1	2	Organic Chemistry III	226	F2	
1	2	Inorganic Pharmaceutical Chemistry	311	F1	Third stage
1	3	Organic Pharmaceutical Chemistry I	326	F2	
1	3	Organic Pharmaceutical Chemistry II	412	F1	Fourth stage
1	3	Organic Pharmaceutical Chemistry III	427	F2	
0	2	Organic Pharmaceutical Chemistry IV	511	F1	Fifth stage
1	3	Advanced Pharmaceutical Analyses	5210	F2	

8.	**Expected learning outcomes of the programme**
Knowledge	
1- Definition of methods of preparation of pharmaceutical chemical compounds 2- Introducing the methods of diagnosing chemical compounds by chemical and spectral methods 3 -Definition of methods of diagnosis and volumetric, quantitative and spectral separation 4- Knowledge of the pharmacological composition, side effects and mechanism of action of the drug. 5- Study of chemical and physical properties of medicines and drug metabolism. 6-Study of changing the effective groups of compounds in order to increase the effectiveness of pharmacological	
Skills	
1 -Acquire the skills of preparing and manufacturing medicines. 2 -The student acquires the skill of dealing with laboratory equipment . 3 - Acquire the skills of knowing the effect of some types of additives on the properties of medicines and their effectiveness. 4 - Acquire the skills to increase the stability of pharmaceutical forms outside or inside the body. 5 - Acquire the skills of drug diagnosis, its mechanism of action and the side effects of the drug.	
Value	
1 .Theoretical Debates 2 -Instructive Meditation 3 .Practice 4- Classroom Circles	

9.	**Teaching and learning strategies**
-Explanation of the scientific material from During the presentation and recitation - Interactive discussions - Brainstorming.	

10.	**Evaluation methods**
- Oral discussions, daily written tests, individual reports, as well as practical skills assessment . - Semester exams and end-of-semester exams, in addition to graduation projects.	

Full Name	Specialization		Date of first appointment: day, month, year	Date obtained The scientific titleDay month year
	General	Private		
Prof. Dr. Shakir Abdel Salem Nehme	**Chemistry**	**Inorganic chemistry**	9/8/1977	11/30/2014
Prof. Dr. Hussein Hassan Hussein	**Chemistry**	**analytical chemistry**	9/11/1991	12/9/2003
Prof. Dr. Raheem Jamil Muhaisen	**Sciences in pharmacy**	**Pharmaceutical Chemistry**	7/7/1999	8/22/2017
Prof. Dr. Hussam Hamza Salman Ghareeb	**Chemistry**	**Organic Chemistry**	1/8/2002	8/12/2019
Asst. Prof. Dr. Rita Sabah Elias Ruto	**Sciences in pharmacy**	**Pharmaceutical Chemistry**	3/30/1998	7/12/2020
Prof. Dr. Leaqaa Abdul Redha Raheem Ayez	**Sciences in pharmacy**	**Pharmaceutical Chemistry**	10/17/1999	1/17/2021
Asst. Prof. Mazen Nazim Musa Maala	**Pharmacy**	**Pharmaceutical Chemistry**	8/24/1980	7/20/2022
Asst. Prof. Dr.. Heba Najeh Jassim Al-Saad	**Pharmacy**	**Pharmaceutical Chemistry**	7/27/2008	4/26/2023
lec. Badr Saleh Salem Saleh Al-Abdullah	**Pharmacy**	**Pharmaceutical Chemistry**	7/10/2006	4/5/2018
Asst. Prof.Maan Abdul Razzaq Suwayd Naeem	**chemistry**	**Physical Chemistry**	4/28/2019	4/28/2019
Asst. Prof. Mudar Najm Abdullah Hassan Effendi	**chemistry**	**Organic Chemistry**	12/18/2002	1/31/2021
Asst. Prof. Dr. Hussein Nasser Khalaf	**chemistry**	**Analytical Chemistry**	6/7/2002	10/11/2019
Lec.Sita Azad Aghward	**Chemistry**	**Organic Chemistry**	2/18/2003	1/6/2014
Asst. Prof. Irfan Abdul Razzaq	**Chemistry**	**Analytical Chemistry**	5/21/2001	3/23/2021
Lec. Ruaa Salman	**Pharmacy**	**Pharmaceutical Chemistry**	7/30/2009	9/11/2021
Lec. Ali Khamas Muhammad	**Pharmacy**	**Pharmaceutical chemistry**	3/19/2007	2/6/2022
Assist.lec. Mustafa Muhammad Hussein	**Pharmacy**	**Pharmaceutical Chemistry**	10/26/2014	3/12/2021
Assist.lec. Mustafa Qusay	**Pharmacy**	**Pharmaceutical Chemistry**	9/21/2014	3/12/2021

Assist.lec.. Khaldoon Shakir	**Pharmacy**	**Pharmaceutical Chemistry**	7/23/2009	3/12/2021
Assist.lec. Lamiaa Hameed	**Pharmacy**	**Pharmaceutical Chemistry**	10/29/2008	6/20/2021
Assist.lec. Muhammad Adel Awaid	**Pharmacy**	**Pharmaceutical Chemistry**	8/7/2013	1/23/2021
Assist.lec. Rawaq Thamer	**Chemistry**	**Analytical chemistry**	2/18/2002	6/14/2022
Assist.lec. Raghad Jawad	**Chemistry**	**Organic Chemistry**	3/4/2002	7/7/2022
Assist.lec. Israa Radi	**Chemistry**	**Organic Chemistry**	5/29/2000	11/10/2022
Assist.lec. Jumana Najm	**Chemistry**	**Analytical Chemistry**	8/13/2002	1/23/2021
Ch. Ibrahim Abdel Reda	**Chemistry**	**Bachelor's**	5/22/1999	----------
Ch. Zainab Asaad	**Chemistry**	**Bachelor's**	10/10/1999	11/6/2006

Professional development
Briefly describe Orienting new faculty members The process used to orient new, visiting, full-time and part-time faculty at the institution and department levels.
Professional development for faculty members
Planning for personal development. The academic program includes workshops, seminars, and discussion panels that focus on aspects of general societal behavior and pharmaceutical behavior in particular. The academic program includes students' participation in various sports, cultural, humanitarian, and community activities. The academic program includes special seminars in which students present scientific products. It also briefly describes the academic and professional development plan and arrangements for faculty members, such as teaching and learning strategies, assessment of learning outcomes, professional development, and Developing communication skills, scientific discussions, etc.

11. **Acceptance standard**
Central admission, Ministry of Higher Education and Scientific Research for each of the following: -My sixth scientific graduate -The first ones from the medical institute -The first in the first stage in the Faculty of Science -The first in the first stage of the medical institute

12.	**The most important sources of information about the program**
The website of the College of Pharmacy at the University of Basra in Arabic and English. The website of the University of Baghdad. The website of the Ministry of Higher Education and Scientific Research. The page of the College of Pharmacy at the University of Baghdad on social networking sites. The billboards installed in the corridors of the college.	

13.	Program development plan

Course structure

Evaluation method	Learning method	Name of the unit or topic	Required learning outcomes	hours	the week
1- Oral discussions in the hall and written tests. 2-Mid-semester and end-of-semester exams. 3-Laboratory reports	Educational lectures	Analytical chemistry	Evaluation of medications qualitatively and quantitatively A- Cognitive objectives 1- Identify the basic principles of analytical chemistry in its various aspects. 2- Correct and precise handling of chemical materials 3- Conducting practical experiments in analytical chemistry to detect various elements and compounds. 4- A Developing the student's ability to use glass tools, the usefulness of each tool and the method of using it, and teaching the student to use special tools for planning and the basic principles of planning technique.. 5- Study various methods of chemical reactions such as neutralization, oxidation, reduction, precipitation, and complex formation.	3 theoretical And 2practical	15

1. Course evaluation

Theoretical and practical subjects are worth 50 marks, while only the theoretical courses are worth 30 marks and include written exams during lectures and attendance, in addition to semester and end-of-semester exams.

2. Learning and teaching resources

- 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

There are many sources that can be relied upon on the Internet	Electronic references, Internet sites

Course description form

Course Name:
Analytical Chemistry
Course Code:
113
Semester/Year: Annual
Season first
Date this description was prepared:
2/21/2024
Available attendance forms:
first stage
Number of study hours (total)/number of units (total):
45 hours first semester, 3 hours per week
Name of the course administrator (if more than one name is mentioned)
Prof. Dr. Hussein Hassan Hussein hussein.hassan@uobasrah.edu.iq
Ass. Prof. Dr. Hussein Nasser Khalaf hussein.khalf@uobasrah.edu.iq
Course objectives
Laying the correct foundations and increasing the student's knowledge of pharmaceutical chemicals because of their impact on the study of Pharmaceutical sciences. The student learns how to detect organic and inorganic compounds in various types of chemicals and pharmaceutical products. Providing students with scientific experience in the field of analytical chemistry in various methods, including neutralization reactions and the effect of acidity on various reactions of simple and complex compounds, qualitative analysis and its importance in various fields of life and other sciences, and detection of compounds by a number of methods using sedimentation titration, complex formation titration, and oxidation titration And the reduction. Developing students' ability to handle chemicals and glassware in a safe manner..
Teaching and learning strategies
Course outcomes, teaching, learning and evaluation methods A- Cognitive objectives 1- Identify the basic principles of analytical chemistry in its various aspects. 2- Correct and precise handling of chemical materials. 3- Conducting practical experiments in analytical chemistry to detect various elements and compounds. 4- Developing the student's ability to use glass tools, the usefulness of each tool and the method of using it, teaching the student to use Tools for plastering and the basic principles of plastering technology. 5- Studying various methods of chemical reactions such as neutralization, oxidation, reduction, precipitation, complex formation. B- The skills objectives of the course 1- Acquiring the skill of diagnosing the type of substance that can be obtained when mixed with different chemicals. 2- Acquiring the skill of dealing with incendiary chemicals such as acids and bases 3 - Acquiring the skill in writing scientific reports. 4- Increasing the student's ability to work individually or in a group.

Teaching and learning methods
1- Theoretical lectures in the classroom.
2- Educational laboratories.
3- Conduct scientific research.

Evaluation methods
1- Oral discussions in the hall and written tests
2-Mid-semester and end-of-semester exams.
3-- Laboratory reports.
4- Weekly or bi-weekly examinations in the laboratory.

Course structure

The week	hours	Required learning outcomes	Name of the unit or topic	Learning method	Evaluation method
1	4	Review of important approved concepts in analytical chemistry: strong and weak electrolytes; Important units of weight and concentration. - evaluation Analysis methods	Review of elementary concept important to analytical chemistry: strong and weak electrolytes; important weight and concentration units - The evaluation of analytical data: Definition of terms.	Educational lectures	1- Oral discussions in the hall and written tests. 2-Mid-semester and end-of-semester exams. 3-Laboratory reports
5-2	10	Introduction to weight analysis: statistical analysis of data; Data rejection, regression analysis methods, sedimentation methods and weight factor.	An introduction to gravimetric analysis: Statistical analysis of data; rejection of data; precipitation methods; gravimetric factor.		
6	4	Scope of applications of gravimetric analysis: inorganic precipitation agents; Organic precipitation agents.	The scope of applications of gravimetric analysis: Inorganic precipitating agents; organic precipitating agents.		
7-8	5	Introduction to volumetric analysis methods: volumetric calculations. Acid-base balance and pH calculations.	An introduction to volumetric methods of analysis: Volumetric calculations; acid-base equilibria and pH calculations.		
9	3	Buffer solutions and a study of the neutralization standard in simple solutions	Buffer solutions: Theory of neutralization titrations of simple system.		
10-11	5	Study of the neutralization standard in complex and precipitated solutions	*Theory of neutralization titrations of complex system; Precipitation titrations*.		
12	4	Calculations of the acid function for complex systems, volumetric methods based on the complex system.	Calculation of pH in complex system; Volumetric methods based on complex system.		

13-14	6	Equilibrium theory in the titration of complexes and sedimentation systems.	Theory of neutralization titrations of complex system; Precipitation titrations.		
15	4	Study of Spectroscopy Methods: Introduction to Optical Analysis Methods; Methods based on radiation absorption.	Spectrophotometric analysis: An introduction to optical methods of analysis; Methods based on absorption of radiation.		

Course evaluation
Distribution is as follows: 40 degrees quarterly and practical exam and daily exams for the first semester60Score of the end of the first semester exam (first semester final).
Learning and teaching resources
- Fundamentals of Analytical Chemistry by Stook and West, 9 Edition.

ctronic references, Internet sites	There are many sources that can be relied upon on the Internet

Course description form

Course Name:
Organic Chemistry II
Course Code:
211
the chapter/the year:
First chapter
Date this description was prepared:
2/21/2024
Available attendance forms:
Second stage
Number of study hours (total)/number of units (total):
45 hourFirst semester,3An hour a week
Name of the course administrator (if more than one name is mentioned)
Prof. Dr. Hussam Hamza Salman **husam.salman@uobasrah.edu.iq**
A.M.D. Mudher Najm Abdullah **madher.abdulla@uobasrah.edu.iq**
Course objectives
The private and government sectors have qualified pharmacists who have medical skills in the field of manufacturing medicines from organic compounds and methods Diagnosis Prepared medicines, calculating their concentration and expiry date, as well as knowing the characteristics of pharmaceutical compounds, as well as conducting research in the field of providing pharmaceutical services, expertise and

consultations, and attending conferences to enrich scientific research and acquire the skills and expertise necessary to develop this academic field.-Y

.

Teaching and learning strategies

A- Knowledge Objectives
1 - Increase knowledge of the basic principles of organic chemistry
2 -Study of chemical reaction methods
3 -Conducting practical experiments to detect different groups of chemical compounds
4 - Proper handling of chemicals and glassware.

B- Course Skill Objectives
1 -Acquire skill on how to detect and identify chemical compounds.
2 -Acquire skill on how to write practical reports.

Teaching and learning methods
1 .Theoretical lectures
2 .Conduct practical experiments
3 .Scientific research
4 -Methodological and supportive books
5 -Scientific discussions and seminars.

Evaluation methods
1 .Mid-term exams and final exams
2 .Daily oral and written exams
3 .Practical laboratory exams
4. Laboratory reports

Course structure

The week	hours	Required learning outcomes	Name of the unit or topic	Learning method	Evaluation method
1-4	10	Aromatic HCs (including,benzene , substitution Compensators on the ring Arenes and their derivatives,	Aromatic Hydrocarbons (Includes benzene, electrophilic aromatic substitution, arenas and their derivatives).	a lecture	Daily oral tests and examinations Weekly and monthly editorial half of the class And the final exam the chapter.
5-7	12	. Carboxylic acids (their properties and interactions)	2- Carboxylic acids: properties, reactions and carboxylic derivatives.		
8-9	5	Primary and secondary amines	Amines I and II.		
10-13	12	Aldehydes and ketones (also include aldol and glycine condensates); Classification, interactions and properties.	Aldehydes and ketones (Include also aldol and Claisen condensation); Classification, reactio and properties.		
14-15	5	Phenols	Phenols		

Course evaluation

Distribution is as follows
30 degrees quarterly and practical exam and daily exams for the first semester70Score of the end of the first semester exam(ultimate).

Learning and teaching resources
1-Organic Chemistry by Robert T. Morrison and Robert N. Boyd. **2- Organic Chemistry by McCurry; 5th ed.; Thomason learning; CA, USA 2000**

Electronic references, Internet sites	

Course Name:
Inorganic Medicinal and Pharmaceutical Chemistry
Course Code:
311
the chapter/the year:
First chapter
Date this description was prepared:
2/21/2024
Available attendance forms:
third stage
Number of study hours (total)/number of units (total):
30 hourFirst semester,3An hour a week
Name of the course administrator (if more than one name is mentioned)
Prof. Dr. Leaqaa Abdul-Redha Raheem Leaqaa.raheem@uobasrah.edu.iq
Lect. . Roaa Salman Pune Roaa.Salman@uobasrah.edu.iq
lec. Ali Khamas Muhammad ali.khamas@uobasrah.edu.iq
Course objectives
It includes review of the principles of inorganic chemistry that apply to medicinal or pharmaceutical chemistry Shedding light on the biological role of trace elements and inorganic compounds, studying the biological and pathological effects of the necessary (essential) elements of the body, and studying the toxicological and therapeutic effects of non-essential elements of the body. Study of the atomic structure of radioactive isotopes and the therapeutic, therapeutic and medical effects of various types of radiation Atomicity. Studying the biological and therapeutic effect of inorganic compounds in treating diseases of the digestive system and their various pharmaceutical uses.
Teaching and learning strategies
A- Knowledge Objectives 1 -Knowing the methods of manufacturing some compounds and medicines 2 -How to deal with chemical compounds 3 -Conducting practical experiments for the manufacture and purification of vehicles B- Course Skills Objectives 1 -Acquire skill in the use of different methods in the manufacture and preparation of medicines 2 - Acquire skill in how to deal with chemical compounds 3 -Acquire skill in writing practical reports Teaching and learning methods 1 -Theoretical lectures

2 -Conducting scientific experiments
3 -Seminars
4 -Daily duties
5 -Written exams
6 -Methodological and supportive books

Evaluation methods
1 -Oral exams
2 -Written exams
3 -Scientific reports
4- Laboratory practical exams

Course structure

Evaluation method	Learning method	Name of the unit or topic	Required learning outcomes	hours	the week
Weekly,monthly , daily, written exams and a final exam the chapter.	Lectures Use PowerPoint to present the lecture And the blackboard	Atomic and molecular structure/ Complexation.	The concept of atoms, bold, complexes or chelates	6	1-3
		Essential and trace ions: Iron, copper, sulfur, iodine. And essential ions: fluoride, bromide, lithium, gold, silver and mercury.	Essential trace ions: iron, copper, sulfur, iodine Non-essentials (fluorine, bromine, lithium, gold, silver, mercury) with the highest concentration	5	2-5
		trointestinal agents: difying agents.	Inorganic compounds used in the treatment of digestive disorders	4	6-7
		Topical agents.	Topical medications	2	8
		Dental agents.	Inorganic compounds used in dental treatment	1	9
		Radiopharmaceutical preparations andRadio opaque and contrast media.	Radiopharmaceutical preparations (radioactive preparations)	*6*	*12-10*

Course evaluation

Distribution is as follows
40 degrees quarterly and practical exam and daily exams for the first semester60Score of the end of the first semester exam (first semester final).

Learning and teaching resources

1-Inorganic Medicinal and Pharmaceutical Chemistry by Block, Roche Soine and Wilson, latest edition
2-Wilson and Gisvold;
Textbook of Organic medicinal and pharmaceutical chemistry; Delgado JN, Remers WA, (eds); latest edition

	Electronic references, Internet sites

Course Name:
Organic Pharmaceutical Chemistry II
Course Code:
412
The **chapter/the year:**
Season first
Date this description was prepared:
2/21/2024
Available attendance forms:
Fourth stage
Number of study hours (total)/number of units (total):
45hourFirst semester,3An hour a week
Name of the course administrator (if more than one name is mentioned)
Prof. Dr. Rita Sabah Elias Rita.elias@uobasrah.edu.iq
Assit.Prof. .Dr. Hiba Najeh Jassem hiba.jassem@uobasrah.edu.iq
Course objectives This course is devoted to the discovery and development of new compounds for the treatment of diseases and allows the translation of the structural formula of the drug into a therapeutic effect. In addition .It focuses on the methods of preparation of certain pharmaceutical compounds -Includes a study of the relationship between the chemical composition of compounds and efficacy (such as some drugs used in the treatment of sympathetic system disorders And drugs used in the treatment of disorders of the adrenal system. -The study of drug kinetics within the organism includes the mechanisms of absorption, metabolism and excretion Preparing students to know the chemical structures of compounds and their relationship to the vital activities of the human body.
Teaching and learning strategies
Course Outcomes and Methods of Teaching, Learning and Assessment A- Knowledge Objectives 1 -How to deal with chemical compounds 2 -Knowing the methods of manufacturing some compounds and medicines 3 -Conducting practical experiments for the manufacture and purification of vehicles B- Course Skills Objectives Acquire skill in preparing compounds and medicines 2 -Acquire skill in the use of different methods in the manufacture and preparation of medicines 3 -Acquire skill in how to deal with chemical compounds Teaching and learning methods 1 -Theoretical lectures 2 -Conducting scientific experiments 3 -Daily duties 4 -Written exams 5 -Methodological and supportive books

Evaluation methods
-Oral exams
2 -Written exams
3 -Scientific reports
4- Laboratory practical exams

Course structure

The week	hours	Required learning outcomes	Name of the unit or topic	Learning method	Evaluation method
1-4	13	Medicines used to treat cholinergic system disorders	Cholinergic agents, cholinergic receptors and their subtypes. - Cholinergic agonists; stereochemistry and structure-activity relationships (SAR); products; cholinesterase inhibitors. -(Cholinergic blocking agent; structure-activity relationships (SAR); Solanaceous alkaloid and analogues; synthetic cholinergic blocking agents and products; ganglionic blocking agents (neuromuscular blocking agents).	Lectures	**Daily oral and written Daily oral and written exams, semi-semester written exams and end-of-semester .exams**
5-7	10	Analgesic drugs and the relationship of the chemical composition with the effectiveness of morphine, benzomorphan and other compounds.. Analgesic compound receptor, anti-allergic and anti-inflammatory compounds	Analgesic agents (SAR of morphine, SAR of meperidine type molecules; S of methadone type compounds; N-methylbezomorphans, antagonist type analgesics in benzomorphans). - Analgesic receptors, endogenous opioids; Products; Antitusive agents; Anti-inflammatory analgesic).		
8-11	8	Adrenergic system drugs, adrenaline receptor, effect of drugs on the epinephrine system, adrenaline receptor inhibitor	Adrenergic agents (Adrenergic neurotransmitters); Adrenergic receptors; Drugs affecting Adrenergic neurotransmission; Sympathomimetic agents; Adrenergic receptor antagonists		
12-14	10	Central nervous system depressants (depressants): benzodiazepine,	CNS depressant; Benzodiazepi and related compour Barbiturates; CNS depressant w skeletal muscle relax		

		and related compounds Barbureate, antispasmodics -Central nervous system stimulants	properties; Antipsychot Anticonvulsa -CNS stimula		
15	4	Steroidal and non-steroidal hormones	Steroidal & nonsteroidal hormones		

Course evaluation
Distribution is as follows: 40 degreesA quarterly and practical exam and daily exams for the first semester60Score of the end of the first semester exam (first semester final).
Learning and teaching resources
.Wilson and Gisvold Textbook of Organic Medicinal and Pharmaceutical Chemistry; Delgado JN, Remers WA, (Eds.); 10th ed., 2004. **Foye's Principles of Medicinal Chemistry (Thomas L. Lemke and Dav Williams)**
Electronic references, Internet sites

Course Name:	
Organic Pharmaceutical Chemistry IV	
Course Code:	
511	
The chapter/the year:	
Season first	
Date this description was prepared:	
2/21/2024	
Available attendance forms:	
Fifth stage	
Number of study hours (total)/number of units (total):	
30 hourFirst semester, 2An hour a week	
Name of the course administrator (if more than one name is mentioned)	
Prof. Dr. Raheem Jamil Mahesein	Raheem.mahesein@uobasrah.edu.iq
Assis.Prof. Mazin Nadham Mousa	mazin.Mousa@uobasrah.edu.iq

Course objectives

Study of pharmaceutical preparations, their properties, preparation and medical uses.
- Studying the use of computers in drug design
- To learn about the latest methods used in designing and developing medicines.

Teaching and learning strategies

- Course outcomes and teaching, learning and evaluation methods
A- Cognitive objectives
1- Study some advanced and modern topics in the field of drug design and development.
2 - Identify the approved strategies to increase the effectiveness of used medications by converting them into primary medications that are not subject to metabolism or change.
Chemical, which is later transformed into an effective drug inside the body.
3-Learn how to use drug design programs for drug discovery and development.

B - Skills objectives for the course:
1- Learn about the work of drug design programs
2- Focus on educating students on how to benefit from the acquired skills in developing the scientific and academic aspect.

C- Teaching and learning methods:
1-Giving theoretical lectures
2- Interact with students and give them the opportunity to ask questions and discuss them
3-Homework
4-Written exams

Evaluation methods:
1-Daily oral evaluation
2-Written exams
3-Viewing students' scientific reports

Course structure

The week	hours	Required learning outcomes	Name of the unit or topic	Learning method	Evaluation method
1	6	The basics of the prodrak concept, the breaking of covalent bonds, the type of effective group, the types of prodrak.	Basic concept of products; Covalent bonds (cleavable); Products of functional groups; Types of products.	Lectures	**a For daily test and exam Weekly And the monthly Editorial For half the semester And the final exam the chapter.**
2	6	Drug release system, Prodrak polymer, structural structure of the polymer and type of attachment to the polymer structure	Chemical delivery systems; Polymeric products; Types and structure of polymers; Cross-linking agents.		
3	4	The drug is released into the tissue concerned	Drug targeting.		

		with the problem			
4	4	Graduation Project	Project.		
5	5	Combinatorial chemistry for research, peptides and compounds with linear structures.	Combinatorial chemistry; Peptides and other linear structures; Drug like molecules; Support and linker; Solution-phase combinatorial chemistry.		
6	5	Purification and diagnosis of analgesic compounds	Detection, purification and analgesics; Encoding combinatorial libraries;High-throughput screening; Virtual screening; Chemical diversity and library design.		

Course evaluation
Distribution is as follows: 30 degrees A quarterly and practical exam and daily exams for the first semester70Score of the end of the first semester exam (first semester final).
Learning and teaching resources
Wilson and Gisvold Textbook of Organic Medicinal and Pharmaceutical Chemistry; Delgado JN, Remers WA, (Eds.); 10th ed., 2004.
Electronic references: Internet sites

Second semester courses

Course Name:
Organic Chemistry I
Course Code:
1210
The chapter/the year:
Chapter 2
Date this description was prepared:
2/21/2024
Available attendance forms:
first stage
Number of study hours (total)/number of units (total):
45 hourFirst semester, 3 An hour a week
Name of the course administrator
Prof. Dr. Hussam Hamza Salman **husam.salman@uobasrah.edu.iq**

Assit.Prof. Dr. Madher Najm Abdullah **madher.abdulla@uobasrah.edu.iq**

Course objectives

Teaching the basics of organic chemistry, which examines the study of chemical compounds and the discovery of compounds with multiple properties and applications that contribute fundamentally to the development of various sciences, industries, and technology. Teaching the student about organic compounds in simplest form, which is that organic compounds contain...
Two atoms and hydrogen, such as alkanes, alkenes, and alkynes, and the difference between them in that they saturated or unsaturated compounds and the difference in their effectiveness.
Their chemical reactions, in addition to the principles of stereochemistry and the properties of aromatic compounds.

Teaching and learning strategies

Course outcomes and teaching, learning and evaluation methods

A- Cognitive objectives

1- Study of other organic compounds that contain an oxygen atom in addition to carbon and hydrogen, such alcohols, ethers, and ethers.

Cyclones and their various chemical reactions.
2 - Study of the stereochemistry of organic compounds
3 - Study of alkyl halides, their reactions, and the mechanics of their reactions
4- -Introduction to simple cyclic compounds
5- - Studying the types of glassware and some of the devices that will be dealt with throughout the years of study
6 - Study and understand methods of analyzing elements in organic compounds.
7 - Studying various purification methods for organic compounds, such as the process of filtration, extraction, recrystallization.

B- The skills objectives of the course

1- Obtaining knowledge of the basic principles of organic chemistry.
2- Studying the methods of chemical reactions.
3- Understanding the types of reactions that can occur with chemicals when mixed.
4- Acquire the skill of dealing with various chemicals.
5- Acquiring the skill in writing scientific reports.

Teaching and learning methods

1 -Theoretical lectures in the classroom.
2- Educational laboratories.
3- Conduct scientific research.
4- Various office research.

Evaluation methods

1- Oral discussions inside the hall and written exams.
2-Mid-term exams and end-of-semester exams.
3-- Laboratory reports-.
4-Weekly or bi-weekly examinations in the laboratory.

Course structure

The week	hours	Required learning outcomes	Name of the unit or topic	Learning method	Evaluation method
1		Introduction to organic chemistry	Introduction.	1-Use PowerPoint to present the lecture and the blackboard	**Exam Oral and written**
2-3	6	Alkane and example of methane	Alkanes and methane.		
4-5	5	Alkenes type 1 and type 2	Alkenes I and II		
6-7	5	Alkynes and dienes	Alkynes and dienes.		
8-9	8	Stereochemistry 1 and 2	Stereochemistry I & II		
10-11	8	Alcohols and ethers	Alcohols and ethers.		
12-13	6	Alkyl halide	Alkyl halides.		
14-15	4	Cycloalkanes	Cycloalkanes.		

Course evaluation

Distribution is as follows:
40 degrees quarterly and practical exam and daily exams for the second semester60Score of the end of the second semester exam (second semester final).

Learning and teaching resources

1- Organic Chemistry by Robert T. Morrison and Robert N. Boyd.
2- Organic Chemistry by McCurry; 5th ed. Thomason learning; CA, USA; 2000.

Course Name:
Organic Chemistry III
Course Code:
226
The chapter/the year:
Chapter 2
Date this description was prepared:
2/21/2024
Available attendance forms:
Second stage
Number of study hours (total)/number of units (total):
30 hour First semester, 2 An hour a week
Name of the course administrator (if more than one name is mentioned)
Prof. Dr. Hussam Hamza Salman **husam.salman@uobasrah.edu.iq**
Assis. Pro. Dr. Madher Najm Abdullah **madher.abdulla@uobasrah.edu.iq**

Course objectives

Teach students the principles of heterocyclic chemistry including basic principles, properties and species and reactions of heterocyclic compounds Which are considered the foundations of the study of pharmacy (such as study of pyrrole compounds; Furan, thiophene, pyridine, quinoline and isoquinoline)It enables students to apply these principles in complex interactions involving heteroatoms

Teaching and learning strategies

Course Outcomes and Methods of Teaching, Learning and Assessment

A- Knowledge Objectives

1 - Increase knowledge of the basic principles in the chemistry of heterogeneous rings.
2 -Study the methods of chemical reactions of heterocyclic rings.
3 -Conducting practical experiments to detect the components of heterogeneous rings.
4 -Correct handling of chemicals and glassware during diagnosis and identification Heterogeneous rings.

B- Skill objectives of the course.

1 -Acquire skill on how to identify heterogeneous episodes.
2 - Acquire skill on how to detect heterogeneous rings.
3 - Acquire skill on how to write practical reports.

Teaching and learning methods

1 -Theoretical lectures
2 -Conducting practical experiments
3 -Scientific Research
4 -Methodological and supportive books
5 -Scientific discussions and seminars

Evaluation methods

1 .Mid-term exams and final exams
2 .Daily oral and written exams
3 .Homework
4 .Daily Reports
5 .Practical laboratory exams
6 .Laboratory Reports

Course structure

The week	hours	Required learning outcomes	Name of the unit or topic	Learning method	Evaluation method
1	5	The heterocyclic system, its types, general structure, properties, abundance in nature, and medicinal compounds.	Heterocyclic system: Classes of heterocyclic systems; general structures; properties; Occurrence in nature and in medical products.	1-Use PowerPoint to present the lecture and the blackboard	**Daily tests and Exams Semi-quarterly Written and final exam the chapter.**
2	3	Heterocyclic compounds such as pyrrole, thiophene	Five-membered ring heterocyclic compounds: pyrrole; furan and thiophen.		

3	2	Sources of pyrrole, furan, and thiophene	Source of pyrrole, furan and thiophen.		
4	5	Study of the effectiveness and turnover of electrophilic substitutes in pyrrole and furan rings	Electrophilic substitution in pyrrole, furan and thiophen: Reactivity and orientation.		
5	4	Hexagonal heterocyclic ring, including its structure, properties, and interactions, such as pyridine	Six-membered ring heterocyclic compounds: Structure & reactions of pyridine.		
6	6	Compounds of saturated heterocyclic rings	Saturated five-membered heterocyclic compounds.		
7	5	Pentagonal and hexagonal heterocyclic rings containing two and three heteroatoms	Heterocyclic of five & six member rings with two & three heteroatoms.		

Course evaluation

Distribution is as follows:
40 degrees quarterly and practical exam and daily exams for the second semester60Score of the end of the second semester exam (second semester final).

Learning and teaching resources

1- Organic Chemistry by Robert T. Morrison and Robert N. Boyed, latest edition. 2- Organic Chemistry by J. McMurry, latest ed., Thomason learning, CA, USA. 3_ An introduction to the chemistry of heterocyclic compound by Acheson, RM latest ed.

Electronic references, Internet sites

Course Name
Organic Pharmaceutical Chemistry I
Course Code:
326
The chapter/the year:
Second semester
Date this description was prepared:

2/21/2024
Available attendance forms:
Third stage
Number of study hours (total)/number of units (total):
45 hourFirst semester, 3An hour a week
Name of the course administrator (if more than one name is mentioned)
Prof. Dr. Leaqaa Abdul Redha Raheem Leaqaa.raheem@uobasrah.edu.iq
Lect. Roaa Salman Pune Roaa.Salman@uobasrah.edu.iq
Lect. Ali Khamas Muhammad ali.khamas@uobasrah.edu.iq
Course objectives
-Shedding light and enabling students to understand the journey of medicine inside the body (absorption, distribution, metabolism, and removal of the drug) and the role of medicinal chemistry in the discovery and development of preparatory therapeutic agents. -Study of the metabolism of chemical compounds and medicines - Study of factors affecting the metabolism of drugs in the body - Study the effect of vacuum derivatives on metabolism in the body. .It also enables students to understand the concept of the relationship between structural structure and bioactiv and its application in the design and synthesis of new compounds or derivatives.
Teaching and learning strategies
Course Outcomes and Methods of Teaching, Learning and Assessment A- Knowledge Objectives 1 - The student's knowledge of all the factors encountered by the drug inside the body (chemical, physical and biological) . 2 - The student's knowledge of traditional and modern methods of drug design. 3 - Know the types of metabolism of drugs inside the body 4 - Know the factors that affect metabolism B – Course Skills Objectives 1 -Acquire the skill of studying the chemical composition of the drug and the consequent factors affecting the d inside the body. 2 – Acquire the necessary skill to make modifications in the chemical composition of the drug in order to devel it and overcome weaknesses in its performance within the body. 3 - Acquire skill on how to write practical reports Teaching and learning methods 1 -Theoretical lectures 2 -Conducting practical experiments 3 -Scientific Research 4 -Methodological and supportive books Evaluation Methods 1 .Semi-semester exams and semester exams 2 .Daily oral and written tests 3 .Practical laboratory exams 4 .Laboratory reports

Course structure					
The week	**hours**	**Required learning outcomes**	**Name of the unit or topic**	**Learning method**	**Evaluation method**
1	4	Distribution of medications in the body	Drug distribution.	Lectures and power point	**Daily and weekly exams with semi-semester and end-of-semester written exams..**
2	3	Acidic qualities–Al-Qaeda Pharmaceuticals	Acid-base properties.		
3	3	Statistical calculations of biological effectiveness	Statistical prediction of pharmacological activity.		
4	2	Quantitative chemistry of the relationship of chemical structure with biological activity	QSAR models.		
5	1	Computational Chemistry	Molecular modeling (Computer aided drug design).		
6	1	Binding forces between the receptor and the structural structure of a drug	Drug receptor interaction: force involved.		
7	2	The relationship of drug stereochemical properties with biological activity	Steric features of drugs.		
8	1	The relationship of optical isomers with biological activity	Optical isomerism and biological activity.		
9	1	Positional formula calculations for compounds	Calculated conformation.		
10	1	The quantitative relationship of three-dimensional structures with their biological effectiveness	Three-dimensional quantitative structure activity relationships and databases.		
11	1	Compounds that are identical to drugs that differ from it by one or more atoms, which are called isosterisms	Isosterism.		
12	1	The physical and chemical connection between drugs and the receptor	Drug-receptor interaction and subsequent events.		
13	22	Drug storage in general: places of biological	General pathways of drug metabolism: Sites of drug		

		transformation of drugs, the role of cyanochrome monooxygenase in metabolism, oxidation reactions, reduction reactions, and decomposition reactions. The second phase of metabolism	biotransformation;Role of cytochrome P450 mono-oxygenases in oxidative biotransformation; Oxidative reactions; Reductive reactions; Hydrolytic reactions; Phase II reactions.		
14	2	Factors that affect drug metabolism	Factors affecting drug metabolism.		

Course evaluation

Distribution is as follows:
40 degrees quarterly and practical exam and daily exams for the second semester60Score of the end of the second semester exam (second semester final).

Learning and teaching resources

1- Organic Chemistry by Robert T. Morrison and Robert N. Boyed, latest edition. 2- Organic Chemistry by J. McMurry, latest ed., Thomason learning, CA, USA. 3_ An introduction to the chemistry of heterocyclic compound by Acheson, RM latest ed.

2-Foye's Principles of Medicinal Chemistry (Thomas L. Lemke and Dav Williams), An Introduction to Medicinal Chemistry (Graham L. Patrick).

Electronic references, Internet sites

Course Name	
Organic Pharmaceutical Chemistry III	
Course Code:	
427	
the chapter/the year:	
Second semester	
Date this description was prepared:	
2/21/2024	
Available attendance forms:	
Fourth stage	
Number of study hours (total)/number of units (total):	
45 hourFirst semester, 3An hour a week	
Name of the course administrator (if more than one name is mentioned)	
Pro. . Dr. Rita Sabah Elias	Rita.elias@uobasrah.edu.iq
Assis. Prof..Dr. Hiba Najeh Jassim	hiba.jassem@uobasrah.edu.iq

Course objectives

To enable students to understand the mechanisms of action of medicine, including antibacterial, antifungal and antiviral compounds, at the molecular level, and the role of medicinal chemistry in the discovery and development of prepared therapeutic compounds. It also enables students to understand the concept of the relationship between structure and activity and its application in the design and preparation of new chemotherapy drugs and hormone derivatives with potential biological activity.

-Study of the biological work of some neurotransmitters within the human body
-The study of drug kinetics within the organism includes the mechanisms of absorption, metabolism and excretion
-Study the relationship between the chemical composition of compounds and efficacy (e.g. antibiotics, anticancer and sulfonamide)
- Preparing students to know the chemical structures of compounds and their relationship to the biological activities the human body

Teaching and learning strategies

Course Outcomes and Methods of Teaching, Learning and Assessment
A- Knowledge Objectives
1 -Knowing the methods of manufacturing some compounds and medicines
2 -How to deal with chemical compounds
3 -Conducting practical experiments for the manufacture and purification of vehicles

B- Course Skills Objectives
1- Acquire skill in the use of different methods in the manufacture and preparation of

medicines
2 - Acquire skill in how to deal with chemical compounds
3 -Acquire skill in writing practical reports

Teaching and learning methods
1 -Theoretical lectures
2 -Conducting scientific experiments
3 -Seminars
4 -Daily duties
5 -Written exams
6 -Methodological and supportive books

Evaluation methods
1 -Oral exams
2 -Written exams
3 -Scientific reports
4 -Laboratory practical exams

Course structure

The week	hours	Required learning outcomes	Name of the unit or topic	Learning method	Evaluation method

1-6	18	Beta-lactam antibiotics such as penicillin, beta-lactamase inhibitors such as cephalosporin and monobactam. -Aminoglycoside, chloramphenicol, and tetracycline. Also, macrolides, antivirals, their types and applications	β-Lactam antibiotics (Penicillins); β-Lactamase inhibitors; Cephalosporins and Monobactams. Aminoglycosides and -Chloramphenicol; Tetracylines; Macrolides; Lincomycins and Polypeptides; Antiviral agents (properties of viruses, viral classification, products).	Lecturers	**Daily oral and written exam, mid-term written exam and end-of-semester .exam**
7-8	4	Sulfonamide compounds, their names, mechanism of action, resistance, toxicity, and side effects. The effect of protein binding on the distribution of drugs in the body	Sulfonamides (chemistry, nomenclature, mechanism of action, resistance, toxicity, side effects, metabolism, protein binding, distribution and SAR); products; Sulfones.		
9-15	23	Anti-cancer drugs: alkylating drugs, anti-biologicals, antimetabolites, plant compounds and other compounds.	Anti-neoplastic agents: Alkylating agents; Antimetabolites; Antibiotics; Plant products; Miscellaneous compounds.		

Course evaluation

Distribution is as follows:
40 degrees quarterly and practical exam and daily exams for the second semester 60 Score of the end of the second semester exam (second semester final).

Learning and teaching resources

1- Organic Chemistry by Robert T. Morrison and Robert N. Boyed, latest edition. 2- Organic Chemistry by J. McMurry, latest ed., Thomason learning, CA, USA. 3_ An introduction to the chemistry of heterocyclic compound by Acheson, RM latest ed.

Electronic references: Internet sites

Course Name:
Advanced Pharmaceutical Analyses
Course Code:
5210
The chapter/the year:
Second semester
Date this description was prepared:
2/21/2024

Available attendance forms:
Fifth stage
Number of study hours (total)/number of units (total):
45 hourFirst semester, 3 hour a week
Name of the course administrator (if more than one name is mentioned)
Prof. Dr. Raheem Jamil Mahesein Raheem.mahesein@uobasrah.edu.iq
Prof. Mazin Nadhem Mousa mazin.Mousa@uobasrah.edu.iq
Assis.Prof Dr. Maan Abdul Razzaq Suwaid maan.suwaid@uobasrah.edu.iq
Course objectives
Study of spectroscopic methods used to identify and characterize organic compounds, including UV, IR, mass nuclear magnetic resonance spectroscopy; It enables students to understand the applications of these techniques the qualitative and quantitative analysis of organic compounds.
Teaching and learning strategies
Course Outcomes and Methods of Teaching, Learning and Assessment A- Knowledge Objectives 1- The use of ultraviolet spectroscopy in the diagnosis of organic and pharmaceutical compounds: This 2- technique is used to identify the presence of double bonds in Organic compound, and knowledge of the existence of succession, as well as identification of the type of bonds, and the presence of active groups, as this technique is useful in identifying the presence of chromophore groups such as (N = N, O=C, C = C and oxchrome such as (X, NH, OH and their locations in molecule of the organic compound 2- The use of infrared spectrum in the diagnosis of organic and pharmaceutical compounds: in a way that 3- determines the type of active aggregates and the type of compensated aggregates, and if there is any 4- factor that reduces Stability and other influencing factors. Know the areas of absorption of common active groups and its applications in organic chemistry. This technique is useful in identifying the existence of effective aggregates as groups [C-O-C EXT.... OH, NH2, O=C, NO.] It is also useful to identify the type of organic compound Aliphatic or aromatic, and also It is useful in identifying the type of C-C mono, bilateral, triple . . 3 -The use of nuclear magnetic resonance spectroscopy in the diagnosis of organic and pharmaceutical compounds: It is considered a precise and highly specific technique for chemical composition through Study of the proton H1 as well as . C13 5- The use of mass spectroscopy in the diagnosis of organic and pharmaceutical compounds: 6- The main purpose of this technique is to determine the molecular weight of the organic compound، It is also useful in identifying the presence of some isotopes, as well as identifying the presence of active groups the organic compound. It is one of the important techniques that help by knowing the preferred location of breakdown by knowing the chemical composition of the compound, whether it is a prepared compound or extracted from plants such as: hydrocarbon compounds, aldehydes and ketones, carboxylic acids and their derivatives, amines, alcohols and phenols. -٥ The use of all these spectra in the identification of an unknown organic compound, where the procedure

of the above four techniques helps in reaching the exact composition of between
Probability set.

B – Skills objectives of the course:
1 -Knowing the formulation of some unknown organic compounds from the reality of their spectra.
2 -Acquiring skill on how to identify effective groups in chemical and pharmaceutical compounds.
3 -Acquiring skill on how to infer the conditions affecting the type of compensated groups, whether they are pull
or pushing electrons and others
4 -Acquire the skill on how to link the results obtained from the application of various spectral methods and hov
write practical reports.

Teaching and learning methods
-١ Theoretical lectures covering all aspects of each method
-٢ Conducting reports and research on the applications of the mentioned methods on chemical compounds
pharmaceutical preparations
-٣ Presentation of application videos to help understand the material and gain skill
4 -Use of methodological and supporting books
-٥ Holding scientific sessions in the form of discussions or seminars

Evaluation Methods
-١ Semi-semester exams and final exams
2 -Daily oral and written exams
-٣ Seminars
4 -Practical laboratory exams
5 -Laboratory reports

Course structure

The week	hours	Required learning outcomes	Name of the unit or topic	Learning method	Evaluation method
1	6	Study of visible and ultraviolet spectroscopy of compounds and interpretation of absorption within those regions. Rules for calculating the highest or optimal absorption values for the ultraviolet region for different systems. Taking examples, problems and solutions.	UV/visible spectroscopy; Sample handling and instrumentation; Characteristic absorption of organic compounds; Rules for calculation of lambda max and application; Application of UV/visible; spectroscopy; Problems and solutions.	Lectures	**Daily oral and written exam, mid-term written exam and end-of-semester exam.**
2	14	Infrared spectroscopy, the boundaries of absorption regions, and the factors that	Infra-Red spectroscopy (theory and H-bonding effect; Sampling techniques and interpretation		

		affect absorption, with models mentioned	of spectra; Characteristic group frequencies of organic compounds; Application of IR spectroscopy; Problems and solutions.		
3	12	proton magnetic resonance spectroscopy plus carbon 13	H1-Nucleomagnetic Resonance (NMR) and C13-NMR spectroscopy; Introduction, the nature of NMR absorption, chemical shifts and factors affecting them, information obtained from NMR spectra, more complex spin-spin splitting patterns, application of H1-NMR spectroscopy; C13-NMR spectroscopy: introduction and characteristics, DEPT C13-NMR spectroscopy.		
4	11	Mass spectrometry represents weight spectroscopy and the rules it relies on to break down the parent compound into small compounds or fragments	Mass spectroscopy: Introduction and interpreting Mass spectra; interpreting Mass spectra fragmentation patterns, Mass behavior of some common functional groups.		
5	2	Elemental analysis includes the proportion of the element in the molecule	elemental microanalysis CHNSO		

Course evaluation

Distribution is as follows:
40 degrees quarterly and practical exam and daily exams for the second semester60Score of the end of the second semester exam (second semester final).

Learning and teaching resources

1. Spectrometric Identification of Organic Compounds by Silverstein, Bassler and Morrill;
2. Applications of absorption spectroscopy of organic compounds by Dyer JR.
3. Organic Chemistry by McMurry; 5th; Thomason learning CA, USA 2000.

Electronic references: Internet sites

Academic Program Description Form

University Name: .**Basrah**

Faculty/Institute: **Pharmacy**

Scientific Department: **pharmacology and toxicology**

Academic or Professional Program Name: **BSc Pharmacy**

Final Certificate Name: **BSc Pharmacy**

Academic System: **semester**

Description Preparation Date: **30/03/2024**

File Completion Date: **30/03/2024**

Signature:

Head of Department Name:

Waleed Khalid Ghanim

Date:**30/03/2024**

Signature:

Scientific Associate Name:

Dr. **Karmallah Shakir** Mahmud

Date:

The file is checked by:

Department of Quality Assurance and University Performance

Director of the Quality Assurance and University Performance Department:

Dr. Rana Hasan Shamki

Date:

Signature:

UNIVERSITY OF BASRAH
COLLEGE OF PHARMACY

Approval of the Dean

1. Program Vision

The College of Pharmacy seeks to be one of the leading higher education institutions at the University of Basra in the field of modern education and scientific research through its scientific, research and administrative activities. It also works to provide an integrated path for its students and professors to make them active and creative in serving the community in the fields of teaching pharmacy and community service in hospitals. Government and private sector.

2. Program Mission

Working to prepare and graduate leading scientific and leadership competencies in the various pharmaceutical sciences, developing the balance of knowledge in the field of scientific research to serve the local, regional and international community, as well as training and refining the minds of students scientifically and cognitively, emphasizing health, social and cultural values and responding to the requirements of the public sector and the local market.

3. Program Objectives

1. Embodying the vision, mission and goals of the University of Basra, and applying the best educational practices with a focus on ensuring and enhancing quality and performance.
2. Preparing specialized cadres capable of serving the community and preparing for the preparation of future specializations.
3. Spreading a culture of health in society, transferring medical knowledge and skills, writing academic research, and creative scientific achievement through student- and teaching-focused activities.

4. The college seeks to conclude scientific and cultural cooperation agreements with corresponding colleges and corresponding departments in different colleges to achieve best practices in the fields of education and pharmaceutical sciences.
5. Focusing on the educational and moral aspects of all its members and spreading the spirit of dedication, tolerance, commitment and work to serve the nation.
6. Paying attention to intellectual and cultural construction through openness to the experiences of other countries in the fields of pharmacy and medical sciences.
Focusing on the educational and moral aspect of the student and instilling a spirit of dedication, tolerance and commitment.

4. Program Accreditation

no

5. Other external influences

no

6. Program Structure

Program Structure	Number of Courses	Credit hours	Percentage	Reviews*
Institution Requirements				
College Requirements	yes			
Department Requirements	yes			
Summer Training	yes			

Other				

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

7. Program Description

Year/Level	Course Code	Course Name	Credit Hours	
2023-2024 4th stage		**Pharmacology II**	**theoretical**	**practical**
			2 hr.	**2 hr.**

8. Expected learning outcomes of the program

Knowledge	
Introducing pharmacy students to the basics of general pharmacology. The student will learn about the different body systems and the medications used to influence them in health and disease. Furthermore, the course will cover medications used to treat microbial infections	
Skills	
Acquire sufficient information about the	

various medications that treat diseases that can affect humans and calculate the correct doses to avoid symptoms and possible interactions.	
Ethics	
Developing students' abilities to diagnose diseases and treatment methods	

9. **Teaching and Learning Strategies**
1- Explaining the scientific material by giving theoretical scientific lectures on medicines and medical drugs that can be used to treat various diseases.

10. **Evaluation methods**
Daily, monthly, mid-semester, and end-of-semester exams

11. **Faculty**

Faculty Members						
Academic Rank	**Specialization**		**Special Requirements/Skills (if applicable)**		**Number of the teaching staff**	
	General	**Special**			**Staff**	**Lecturer**
Prof.	Pharmacy	Pharmacology and toxicology			yes	
Assistant Prof.	Pharmacy	Pharmacology			yes	
Assistant Prof.	Pharmacy	Pharmacology and toxicology			yes	
Lecturer Dr.	Pharmacy	Pharmacology			yes	
Lecturer Dr.	Pharmacy	Pharmacology			yes	

Professional Development
Mentoring new faculty members
Professional development of faculty members

12. Acceptance Criterion

13. The most important sources of information about the program

Lippincott pharmacology7th edition, 2019
Katzung basic and clinical pharmacology 12th edition, 2012

14. Program Development Plan
A comprehensive understanding of normal body function, allowing more effective treatment of abnormal or pathological conditions. The study of physiology is of central importance in medicine and related health sciences, because it supports advances in our understanding disease and our ability to treat it more effectively.

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
2023-2024 fourth stage		Pharmacology II	basic	•				•				•			

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

Course Description Form

1. Course Name:
Pharmacology II
2. Course Code:
3. Semester / Year:
Semester
4. Description Preparation Date:
30/03/2024
5. Available Attendance Forms:
Attendance system
6. Number of Credit Hours (Total) / Number of Units (Total)
60 semester hours. 2 hours per week theoretical and 2 hours practical, for 15 week
7. Course administrator's name (mention all, if more than one name)
Name: Lec. Dr. Asmaa Mohammed Email:
8. Course Objectives
The primary goal is to explain the basic mechanisms by which… **How they work in an organism and how they interact. He provides** **A comprehensive understanding of the body's normal function, enabling more** **Effective treatment for abnormal or pathological conditions.** **The study of physiology is of central importance in medicine and** **Health sciences are relevant, because they support advances in our understanding** **disease and our ability to treat it more effectively**
9. Teaching and Learning Strategies
1- Educational strategy, collaborative concept planning. **2- Brainstorming education strategy.** **3- Education Strategy Notes Series**
10. Course Structure

11. Course Evaluation

The distribution is as follows: 40 marks for the mid-term exams, divided into 20 theoretical and 20 mar

12. Learning and Teaching Resources

Lippincott pharmacology7th edition, 2019

Katzung basic and clinical pharmacology 12th edition, 2012

Google scholar

اسم التدريسي المكلف	المادة العملية	اسم التدريسي المكلف	المادة النظرية	التاريخ	الاسبوع
م. شيماء نادم	**Routs of drug administration**	م. د أسماء محمد	**Introduction to CNS pharmacology**	**25/9**	**1**
م. شيماء نادم	**Absorption and excretion**	م. د أسماء محمد	**Anxiolytic and hypnotic**	**27/9 1/10**	**2**
م.م ازهار يونس	**Barbiturates**	م. د أسماء محمد	**Treatment of neurogenerative diseases**	**4/10**	**3**
م.م ازهار يونس	**Effect of parasympathetics on glands**	م. د ميساء بناي	**Opioid analgesics**	**8/10**	**4**
	Collective exam	م. د ميساء بناي	**CNS stimulants**	**9/10 to 11/10**	**5**
	غياب الطلبة قبل امتحان المد	م. د ميساء بناي	**Antiepileptic drug**	**15/10**	**6**
	Mid exam		**Mid exam**	**4/11 to 20/11**	**7**
م. م علي محمد جاسم	**Drug and human eye**	م. د كرم الله شاكر	**Antidepressant**	**22/11**	**8**
م. م علي محمد جاسم	**Effects of drugs on IOP**	م. د كرم الله شاكر	**Antipsychotics**	**19/11**	**9**

م. م علي محمد جاسم	**Evaluation of NSAIDs**	ا م د احمد هامش	**Diuretics**	**9/10**	**10**
م. د شيماء محمد	**Evaluation of antiparkinsonian**	ا. م .د احمد هامش	**Antihypertensive drugs**	**16/10**	**11**
م. د ميساء بناي	**Evaluation of opioids**	ا .م .د احمد هامش	**Drugs for heart failure**	**23/10**	**12**
		م. د شيماء محمد	**Antihyperlipidemic**	**24/11**	**13**
		م. د شيماء محمد	**Gastrointestinal and antiemetic drugs**	**27/11**	**14**
		م. د شيماء محمد	**Drugs acting on the respiratory system**	**8/12**	**15**
		م. د شيماء محمد	**Local anesthesia**	**10/12**	**16**
		ا. م .د اسيا سلمان	**General anesthesia**	**11/12**	**17**
		ا. م .د اسيا سلمان	**Antiarrhythmic**	**11/12**	**18**
		ا. م .د اسيا سلمان	**Anti-Anginal**	**13/12**	**19**
		ا. م .د اسيا سلمان	**Drugs effecting the blood**	**13/12**	**20**

Academic Program Description Form

University Name: .**Basra**

Faculty/Institute: **Pharmacy**

Scientific Department: **pharmacology and toxicology**

Academic or Professional Program Name: **BSc Pharmacy**

Final Certificate Name: **BSc Pharmacy**

Academic System: **semester**

Description Preparation Date: **30/03/2024**

File Completion Date: **30/03/2024**

Signature:

Head of Department Name:

Waleed Khalid Ghanim

Date:**30/03/2024**

Signature:

Scientific Associate Name:

Dr. **Karmallah Shakir** Mahmud

Date:

The file is checked by:

Department of Quality Assurance and University Performance

Director of the Quality Assurance and University Performance Department:

Dr. Rana Hasan Shamki

Date:

Signature:

UNIVERSITY OF BASRAH
COLLEGE OF PHARMACY

Approval of the Dean

1. Program Vision

The College of Pharmacy seeks to be one of the leading higher education institutions at the University of Basra in the field of modern education and scientific research through its scientific, research and administrative activities. It also works to provide an integrated path for its students and professors to make them active and creative in serving the community in the fields of teaching pharmacy and community service in hospitals. Government and private sector.

2. Program Mission

Working to prepare and graduate leading scientific and leadership competencies in the various pharmaceutical sciences, developing the balance of knowledge in the field of scientific research to serve the local, regional and international community, as well as training and refining the minds of students scientifically and cognitively, emphasizing health, social and cultural values and responding to the requirements of the public sector and the local market.

3. Program Objectives

1. Embodying the vision, mission and goals of the University of Basra, and applying the best educational practices with a focus on ensuring and enhancing quality and performance.
2. Preparing specialized cadres capable of serving the community and preparing for the preparation of future specializations.
3. Spreading a culture of health in society, transferring medical knowledge and skills, writing academic research, and creative scientific achievement through student- and teaching-focused activities.

4. The college seeks to conclude scientific and cultural cooperation agreements with corresponding colleges and corresponding departments in different colleges to achieve best practices in the fields of education and pharmaceutical sciences.
5. Focusing on the educational and moral aspects of all its members and spreading the spirit of dedication, tolerance, commitment and work to serve the nation.
6. Paying attention to intellectual and cultural construction through openness to the experiences of other countries in the fields of pharmacy and medical sciences.
Focusing on the educational and moral aspect of the student and instilling a spirit of dedication, tolerance and commitment.

4. Program Accreditation

no

5. Other external influences

no

6. Program Structure

Program Structure	Number of Courses	Credit hours	Percentage	Reviews*
Institution Requirements				
College Requirements	yes			
Department Requirements	yes			
Summer Training	yes			

Other				

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

7. Program Description

Year/Level	Course Code	Course Name	Credit Hours	
2023-2024 third stage		**Pharmacology I**	**theoretical**	**practical**
			3 hr.	

8. Expected learning outcomes of the program

Knowledge	
Introducing pharmacy students to the basics of general pharmacology. The student will learn about the different body systems and the medications used to influence them in health and disease. Furthermore, the course will cover medications used to treat microbial infections	
Skills	
Acquire sufficient information about the	

various medications that treat diseases that can affect humans and calculate the correct doses to avoid symptoms and possible interactions.	
Ethics	
Developing students' abilities to diagnose diseases and treatment methods	

9. **Teaching and Learning Strategies**
1- Explaining the scientific material by giving theoretical scientific lectures on medicines and medical drugs that can be used to treat various diseases.

10. **Evaluation methods**
Daily, monthly, mid-semester, and end-of-semester exams

11. **Faculty**

Faculty Members						
Academic Rank	**Specialization**		**Special Requirements/Skills (if applicable)**		**Number of the teaching staff**	
	General	**Special**			**Staff**	**Lecturer**
Assistant prof	Pharmacy	Pharmacology			yes	
Lecturer Dr.	Pharmacy	Pharmacology			yes	
Lecturer Dr.	Veterinary medicine	Pharmacology			yes	
Lecturer Dr.	Pharmacy	Pharmacology			yes	

Professional Development
Mentoring new faculty members
Professional development of faculty members

12. Acceptance Criterion

13. The most important sources of information about the program

Lippincott pharmacology7th edition, 2019
Katzung basic and clinical pharmacology 12th edition, 2012

14. Program Development Plan

A comprehensive understanding of normal body function, allowing more effective treatment of abnormal or pathological conditions.

The study of physiology is of central importance in medicine and related health sciences, because it supports advances in our understanding

disease and our ability to treat it more effectively.

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
2023-2024 third stage		Pharmacology	basic	•				•				•			

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

Course Description Form

1. Course Name:
Pharmacology I
2. Course Code:
3. Semester / Year:
Semester
4. Description Preparation Date:
30/03/2024
5. Available Attendance Forms:
Attendance system
6. Number of Credit Hours (Total) / Number of Units (Total)
45 semester hours. 3 hours a week theoretically, for 15 weeks
7. Course administrator's name (mention all, if more than one name)
Name: Lec. Dr. Karamallah Shaker Mahmoud Email:
8. Course Objectives
The primary goal is to explain the basic mechanisms by which… **How they work in an organism and how they interact. He provides** **A comprehensive understanding of the body's normal function, enabling more** **Effective treatment for abnormal or pathological conditions.** **The study of physiology is of central importance in medicine and** **Health sciences are relevant, because they support advances in our understanding** **disease and our ability to treat it more effectively**
9. Teaching and Learning Strategies
1- Educational strategy, collaborative concept planning. **2- Brainstorming education strategy.** **3- Education Strategy Notes Series**
10. Course Structure

11. Course Evaluation
The distribution is as follows: 30 marks for the mid-term exams and 70 marks for the final exam
12. Learning and Teaching Resources
Lippincott pharmacology7th edition, 2019
Katzung basic and clinical pharmacology 12th edition, 2012
Google scholar

اسم التدريسي المكلف	المادة العملية	المادة النظرية	التاريخ	الاسبوع
م.د أسماء محمد		**General introduction to pharmacology**	**20/2/2023**	**1**
م.د أسماء محمد		**Pharmacokinetics**	**21,23/2**	**2**
م.د أسماء محمد		**Drug receptor interaction and pharmacodynamics**	**27,28/2 2/3**	**3**
م.د كرم الله شاكر		**The autonomic nervous system (ANS)**	**6,7/3**	**4**
م.د كرم الله شاكر		**Cholinergic system**	**9,13,14,16/3**	**5**
م.د كرم الله شاكر		**Adrenergic system**	**20,21,23,27/3**	
		Mid exam	**4/4- 20/4**	
ا.م.د احمد هامش		**Principal of antimicrobial therapy**	**24/4**	**7**
ا.م.د احمد هامش		**B lactam and other cell wall synthesis inhibitor antibiotics**	**25,27/4 1/5**	**8**
ا.م.د احمد هامش		**Protein synthesis inhibitors**	**1,2/5**	**9**
م.د. بان ماجد		**Quninolones, folate antagonistand urinary tract antiseptics**	**4/5**	**10**
م.د. بان ماجد		**Antimycobacterium drugs**	**8/5**	**11**
م.د. بان ماجد		**Antifungal drugs**	**9/5**	**12**
م.د. بان ماجد		**Antiprotozal drugs**	**11/5**	**13**
م.د. بان ماجد		**Antiviral drugs**	**15/5**	**14**
		Final	**21/5**	

Academic Program Description Form

University Name: .**Basra**

Faculty/Institute: **Pharmacy**

Scientific Department: **pharmacology and toxicology**

Academic or Professional Program Name: **BSc Pharmacy**

Final Certificate Name: **BSc Pharmacy**

Academic System: **semester**

Description Preparation Date: **30/03/2024**

File Completion Date: **30/03/2024**

Signature:

Head of Department Name:

Waleed Khalid Ghanim

Date:**30/03/2024**

Signature:

Scientific Associate Name:

Dr. **Karmallah Shakir** Mahmud

Date:

The file is checked by:

Department of Quality Assurance and University Performance

Director of the Quality Assurance and University Performance Department:

Dr. Rana Hasan Shamki

Date:

Signature:

UNIVERSITY OF BASRAH
COLLEGE OF PHARMACY

Approval of the Dean

1. Program Vision

The College of Pharmacy seeks to be one of the leading higher education institutions at the University of Basra in the field of modern education and scientific research through its scientific, research and administrative activities. It also works to provide an integrated path for its students and professors to make them active and creative in serving the community in the fields of teaching pharmacy and community service in hospitals. Government and private sector.

2. Program Mission

Working to prepare and graduate leading scientific and leadership competencies in the various pharmaceutical sciences, developing the balance of knowledge in the field of scientific research to serve the local, regional and international community, as well as training and refining the minds of students scientifically and cognitively, emphasizing health, social and cultural values and responding to the requirements of the public sector and the local market.

3. Program Objectives

1. Embodying the vision, mission and goals of the University of Basra, and applying the best educational practices with a focus on ensuring and enhancing quality and performance.
2. Preparing specialized cadres capable of serving the community and preparing for the preparation of future specializations.
3. Spreading a culture of health in society, transferring medical knowledge and skills, writing academic research, and creative scientific achievement through student- and teaching-focused activities.

4. The college seeks to conclude scientific and cultural cooperation agreements with corresponding colleges and corresponding departments in different colleges to achieve best practices in the fields of education and pharmaceutical sciences.
5. Focusing on the educational and moral aspects of all its members and spreading the spirit of dedication, tolerance, commitment and work to serve the nation.
6. Paying attention to intellectual and cultural construction through openness to the experiences of other countries in the fields of pharmacy and medical sciences.
Focusing on the educational and moral aspect of the student and instilling a spirit of dedication, tolerance and commitment.

4. Program Accreditation

no

5. Other external influences

no

6. Program Structure

Program Structure	Number of Courses	Credit hours	Percentage	Reviews*
Institution Requirements				
College Requirements	yes			
Department Requirements	yes			
Summer Training	yes			

Other				

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

7. Program Description

Year/Level	Course Code	Course Name	Credit Hours	
2023-2024 second stage		**physiology**	**theoretical**	**practical**
			3 hr.	**2 hr.**

8. Expected learning outcomes of the program

Knowledge	
Informing students about human organs, their functions, diseases that may affect these organs, and possible treatment methods	
Skills	
Acquire sufficient information about the	

human body and various vital organs	
Ethics	
Developing students' abilities to diagnose diseases and treatment methods	

9. Teaching and Learning Strategies

1- Explaining the scientific material by giving theoretical scientific lectures about the various human organs.

2- Applying the theoretical aspect in practical laboratories by carrying out some important scientific experiments that consolidate the information given in the theoretical aspect.

10. Evaluation methods

Daily, monthly, mid-semester, and end-of-semester exams

11. Faculty

Faculty Members

Academic Rank	Specialization		Special Requirements/Skills (if applicable)		Number of the teaching staff	
	General	Special			Staff	Lecturer
prof	Human biology	Physiology	Physiology		yes	

prof	Veterinary medicine	Veterinary physiology			yes	
Assistant prof	Veterinary medicine	Physiology			yes	
Assistant prof	Veterinary medicine	Veterinary physiology			yes	
Lecturer	Veterinary medicine	Physiology			yes	
Lecturer	Pharmacy	Physiology			Yes	
Assistant Lec.	Pharmacy	Physiology			yes	

Professional Development

Mentoring new faculty members

Professional development of faculty members

12. Acceptance Criterion

13. The most important sources of information about the program

GUYTON AND HALL TEXTBOOK OF MEDICAL PHYSIOLOGY,

GUYTON AND HALL TEXTBOOK OF MEDICAL PHYSIOLOGY, FOURTEENTH EDITION ISBN: 978-0-323-59712-8 INTERNATIONAL EDITION ISBN: 978-0-323-67280-1

14. Program Development Plan
A comprehensive understanding of normal body function, allowing more effective treatment of abnormal or pathological conditions. The study of physiology is of central importance in medicine and related health sciences, because it supports advances in our understanding disease and our ability to treat it more effectively.

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
2023-2024 second stage		Physiology	basic	•				•				•			

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

Course Description Form

1. Course Name:
Human physiology
2. Course Code:
3. Semester / Year:
Semester
4. Description Preparation Date:
30/03/2024
5. Available Attendance Forms:
Attendance system
6. Number of Credit Hours (Total) / Number of Units (Total)
75 semester hours. 3 hours per week theoretical and 2 hours per week practical
7. Course administrator's name (mention all, if more than one name)
Name: assistant prof. Dr. Muhsin Sagheer Ghalib Email:
8. Course Objectives
The primary goal is to explain the basic mechanisms by which… **How they work in an organism and how they interact. He provides** **A comprehensive understanding of the body's normal function, enabling more** **Effective treatment for abnormal or pathological conditions.** **The study of physiology is of central importance in medicine and** **Health sciences are relevant, because they support advances in our understanding** **disease and our ability to treat it more effectively**
9. Teaching and Learning Strategies
Strategy
10. Course Structure

Week

اسم التدريسي المكلف العملي	اسم التدريسي المكلف النظري	المادة العملية	المادة النظرية	التاريخ	السبوع
م.م فلاح صدام	ا.د نظيرة فالح	Osmosis andfragility	**-Cell physiology -Plasma membrane structure -Transport in plasma membrane**	**26/09 to 28/09**	**1**
م.م فلاح صدام	ا.د.نظيرة فالح	Simple muscle twitch	**Membrane of potential and action potentials**	**3/10 to 5/10**	**2**
م حسين محمد	م. رشا نصير	Tetanus and fatigue	**Neuro transmitter**	**10/10 to 12/10**	**3**
م. ابرار سلمان	ا. م.د منال ناصر	Smooth muscle contraction	**Contraction of skeletal muscleContraction and excitation of smooth musclePhysiology of cardiac muscleThe special senses**	**17/10 to 19/10**	**4**
	ا.د نظيره فالح	Collective exam	**The nervous systemThe autonomic nervous system**	**24/10 to 26/10**	**5**
			Mid exam	**1/11 to 16/11**	**6-7**
م.ابرار سلمان	م. رشا نصير	vision	**Respiratory system**	**21/11 to 23/11**	**8**
م. رشا نصير	م. رشا نصير	spirometer	**Respiratory system**	**5/12 to 7/12**	**9**
م.م علي دمحم جاسم	ا.م.د محسن صغير	Blood pressure	**Cardiovascular system**	**12/11 to 14/12**	
م. رافد عبد الرؤوف	ا.م.د.محسن صغير	ECG	**Cardiovascular system**	**19/12 to 21/12**	
	ا.م.د.منال ناصر		**Urinary system**	**26/12 to 28/12**	

11. Course Evaluation

The distribution is as follows: 20 marks for semester text exams and 20 marks for the practical aspect. 60 fina

12. Learning and Teaching Resources

GUYTON AND HALL TEXTBOOK OF MEDICALPHYSIOLOGY,

Gannon’s review medical physiology

Google scholar

Academic Program Description Form

University Name: .**Basra**

Faculty/Institute: **Pharmacy**

Scientific Department: **pharmacology and toxicology**

Academic or Professional Program Name: **BSc Pharmacy**

Final Certificate Name: **BSc Pharmacy**

Academic System: **semester**

Description Preparation Date: **30/03/2024**

File Completion Date: **30/03/2024**

Signature:

Head of Department Name:

Waleed Khalid Ghanim

Date:**30/03/2024**

Signature:

Scientific Associate Name:

Dr. **Karmallah Shakir** Mahmud

Date:

The file is checked by:

Department of Quality Assurance and University Performance

Director of the Quality Assurance and University Performance Department:

Dr. Rana Hasan Shamki

Date:

Signature:

UNIVERSITY OF BASRAH
COLLEGE OF PHARMACY

Approval of the Dean

1. Program Vision

The College of Pharmacy seeks to be one of the leading higher education institutions at the University of Basra in the field of modern education and scientific research through its scientific, research and administrative activities. It also works to provide an integrated path for its students and professors to make them active and creative in serving the community in the fields of teaching pharmacy and community service in hospitals. Government and private sector.

2. Program Mission

Working to prepare and graduate leading scientific and leadership competencies in the various pharmaceutical sciences, developing the balance of knowledge in the field of scientific research to serve the local, regional and international community, as well as training and refining the minds of students scientifically and cognitively, emphasizing health, social and cultural values and responding to the requirements of the public sector and the local market.

3. Program Objectives

1. Embodying the vision, mission and goals of the University of Basra, and applying the best educational practices with a focus on ensuring and enhancing quality and performance.
2. Preparing specialized cadres capable of serving the community and preparing for the preparation of future specializations.
3. Spreading a culture of health in society, transferring medical knowledge and skills, writing academic research, and creative scientific achievement through student- and teaching-focused activities.

4. The college seeks to conclude scientific and cultural cooperation agreements with corresponding colleges and corresponding departments in different colleges to achieve best practices in the fields of education and pharmaceutical sciences.
5. Focusing on the educational and moral aspects of all its members and spreading the spirit of dedication, tolerance, commitment and work to serve the nation.
6. Paying attention to intellectual and cultural construction through openness to the experiences of other countries in the fields of pharmacy and medical sciences.
Focusing on the educational and moral aspect of the student and instilling a spirit of dedication, tolerance and commitment.

4. Program Accreditation

no

5. Other external influences

no

6. Program Structure

Program Structure	Number of Courses	Credit hours	Percentage	Reviews*
Institution Requirements				
College Requirements	yes			
Department Requirements	yes			
Summer Training	yes			

Other				

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

7. Program Description

Year/Level	Course Code	Course Name	Credit Hours	
2023-2024 5th stage		**Clinical toxicology**	**theoretical**	**practical**
			2 hr.	**2 hr.**

8. Expected learning outcomes of the program

Knowledge	
The aim of this topic is to understand the effectiveness, safety and effectiveness of drugs in humans, discover new lead compounds and understand the mechanisms of action of drugs, in addition to their negative impact, in various human systems. The course will cover drugs used to treat microbial infections	
Skills	
Gaining sufficient information	

about the various medicines and toxins that treat diseases or that affect the human body, diseases that can affect humans, calculating the correct doses to avoid symptoms and possible interactions, and methods of treating various cases of poisoning.	
Ethics	
Developing students' abilities to diagnose diseases and treatment methods	

9. Teaching and Learning Strategies

1- Explaining the scientific material by giving theoretical scientific lectures on medicines and medical drugs that can be used to treat various diseases.

10. Evaluation methods
Daily, monthly, mid-semester, and end-of-semester exams

11. Faculty

Faculty Members

Academic Rank	Specialization		Special Requirements/Skills (if applicable)		Number of the teaching staff	
	General	Special			Staff	Lecturer
Prof.	Pharmacy	Pharmacology and toxicology			yes	
Assistant Prof.	Pharmacy	Pharmacology			yes	
Assistant Prof.	Pharmacy	Pharmacology and toxicology			yes	
Lecturer Dr.	Pharmacy	Pharmacology			yes	
Lecturer Dr.	Pharmacy	Pharmacology			yes	

Professional Development

Mentoring new faculty members
Professional development of faculty members

12. **Acceptance Criterion**

13. **The most important sources of information about the program**
Gossal TA, Bricker TD: Principles of clinical toxicology Viccellio P: Handbook of medicinal toxicology, latest edition

14. Program Development Plan
A comprehensive understanding of normal body function, allowing more effective treatment of abnormal or pathological conditions. The study of physiology is of central importance in medicine and related health sciences, because it supports advances in our understanding disease and our ability to treat it more effectively.

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
2023-2024 fifth stage		Clinical toxicology	basic	•				•				•			

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

Course Description Form

1. Course Name:
Clinical toxicology
2. Course Code:
3. Semester / Year:
Semester
4. Description Preparation Date:
30/03/2024
5. Available Attendance Forms:
Attendance system
6. Number of Credit Hours (Total) / Number of Units (Total)
60 semester hours. 2 hours per week theoretical and 2 hours practical, for 15 wee
7. Course administrator's name (mention all, if more than one name)
Name: Prof. Dr. Usama Aube Jacob Email:
8. Course Objectives
The primary goal is to explain the basic mechanisms by which… **How they work in an organism and how they interact. He provides** **A comprehensive understanding of the body's normal function, enabling more** **Effective treatment for abnormal or pathological conditions.** **The study of physiology is of central importance in medicine and** **Health sciences are relevant, because they support advances in our understanding** **disease and our ability to treat it more effectively**
9. Teaching and Learning Strategies
1- Educational strategy, collaborative concept planning. **2- Brainstorming education strategy.** **3- Education Strategy Notes Series**
10. Course Structure

اسم التدريسي المكلف	المادة العملية	المادة النظرية	التاريخ
ا.د.اسامة أيوب يعقوب	Lab principles of toxicity testing م.م. حسن محمود حميد	**Intial evaluation and management of poisoned patients lecure**	**17/09 to 21/09**
ا.د.اسامة أيوب يعقوب	OTC drugs toxicity م.م. حسن محمود حميد	**Drug toxicity OTC**	**24/09 to 28/09**
ا.د.اسامة أيوب يعقوب	Urine analysis of toxins م. رسول جلوب هليل	**Drug toxicity NSAIDs and vitamins**	**01/10 to 05/10**
م.د وليد خالد غانم	Cardiac glycosides م.د. رونق عادل ياسين	**beta blockers, Calcium channel blocker**	**8/10 to 12/10**
م.د وليد خالد غانم	Toxicity with food and dietary supplements م. زينب نجم عبد النبي	**Digoxin, ACE inhibitors, Antiarrhythmic agents**	**15/10 to 19/10**
		Mid exam	**04/11 to 16/11**
ا.م.د منال عبد الخالق ابراهيم	Toxicity of antiparkinsonian drugs م. زينب نجم عبد النبي	**Hydrocarbon Toxicity Hallucination Toxicity**	**19/11 to 23/11**
ا.م.د منال عبد الخالق ابراهيم	Evaluation of drug toxicity on human م.م حسين محمد عبود	**Cocaine Toxicity Antiseptic and Disinfectant Toxicity**	**26/11 to 30/11**
ا.م.د منال عبد الخالق ابراهيم	Toxicity of heavy metals م. رسول جلوب هليل	**Camphor and caustic Toxicity**	**03/12 to 07/12**
ا.م.د.زينب هارون احمد	Toxicity of heavy metals م. رسول جلوب هليل	**CNS stimulants toxicity**	**10/12 to 14/11**
ا.م.د.زينب هارون احمد		**CNS deprassents and anticholinergic agents toxicity**	**17/12 to 21/12**
ا.د.اسامة أيوب يعقوب		**Plant toxicity**	**17/12 to 21/12**

11. Course Evaluation				
The distribution is as follows: 40 marks for the mid-term exams, divided into 20 theoretical and 2				0 ma
12. Learning and Teaching Resources				
Gossal TA, Bricker TD: Principles of clinical toxicology				
Viccellio P: Handbook of medicinal toxicology, latest edition				
Google scholar				

Academic Program Description Form

University Name: Basrah

Faculty/Institute: Pharmacy collage

Scientific Branch: Clinical Laboratory Sciences

Name of the academic or professional program: Pharmaceutical Sciences

Name of final degree: Bachelor of Science in Pharmacy

Academic system: semester

File Completion Date: 21/ 3/ 2024

Signature:

Head of Department: **Dr. Eiman Ali Saeed**

Date: 21\3\2024

Signature:

Scientific Associate: **Dr. Karam – Allah Shaker**

Date: 21\3\2024

The file is checked by:

Department of Quality Assurance and University Performance

Director of the Quality Assurance and University Performance Department:

Dr. Rana Hasan Shamki

Date:

Signature:

UNIVERSITY OF BASRAH COLLEGE OF PHARMACY

Approval of the Dean

Program vision

The Clinical Laboratory Sciences Branch aims to: Preparing specialized graduates with scientific competence and practical experience, who have the ability to absorb and apply all modern technologies in the field of laboratory medical diagnosis. The branch also seeks to distinguish itself scientifically as an institution with a high academic level by providing a high-quality educational level that produces qualified pharmaceutical competencies, which pushes the branch and then the College of Pharmacy to reach a leadership position in the field of academic scientific research.

Program mission

The clinical laboratory sciences branch's teaching staff has undertaken the task of teaching in the clinical laboratory sciences specializations for primary and postgraduate studies to provide health and academic institutions with pharmaceutical expertise and competencies, in addition to providing scientific consultations and laboratory evaluation in all branches of clinical laboratory sciences, such as histology, anatomy, human cell biology, pathology, Clinical biochemistry, immunology, pathogenic bacteria, parasites, and viruses to help doctors diagnose and make accurate treatment decisions.

Program objectives

Clinical laboratory sciences include a number of scientific specializations that support and support the pharmaceutical specializations, as follows:

The first stage :

**First semester **

Human biology: Studies of the functional systems of the human body (eg nervous system,digestive, respiratory system, muscular system, reproductive system...) and the nuclei of cell structures. This science is closely related to other sciences such as cell biology,Immunity,Hematology and microbiology.

**Second Semester **

Histology: interested in studying the histological structure of the human body and the microscopic

anatomy of cells and tissues. It is based on examining a thin slice (section) of tissue under a light microscope or an electron microscope. Histology is an essential tool of biology and medicine.

Anatomy: Human anatomy is one of the basic medical sciences, concerned with studying the shape and structure of living organisms as well as their partsWhether they are members or tissues.Anatomy is related to natureWith embryology,And comparative anatomy,and evolutionary biology.

The second stage:
**First semester **

Medical microbiology 1: This lesson is concerned with pathogenic bacteria by identifying pathogenic bacterial species and studying them from a morphological standpoint, their most important diagnostic characteristics, their pathogenicity, the techniques used in laboratory cultivation, methods of diagnosing them and studying their drug sensitivity, in addition to methods of prevention and treatment.

**Second Semester **

Medical Microbiology2: This lesson includes three important specializations in medical microbiology: virology, parasitology, and immunology. The study of viruses and parasites means the types of pathogenic ones and the study of their characteristics and diagnostic characteristics, their life cycles, pathogenesis, methods of infection, stages of infection and methods of laboratory diagnosis, then prevention and treatment. While immunology is concerned with studying the components of the immune system, the types of immune response, their mechanisms of action, and their role in confronting various pathogens.

The third stage
**First semester **

Pathology: A microscopic study of diseased tissues and an important tool in anatomical pathology, or what is known as pathological anatomy of tissues, and a description of the basic concepts of diseases at the cellular level.

Biochemistry 1: This lesson is concerned with explaining the mechanism of action of enzymes, or what are known as biochemical catalysts, the metabolism of glucose, fats, amino acids, and energy

generation. It also includes a description of the structure of DNA and what it smells like.toFrom genetic information.

Second Semester \\

Biochemistry2: Interested in studying bioenergy and its roleATP and metabolic processes of different food sources. The work of the endocrine system, hormones, nucleotide metabolism, DNA structure, and transcription and translation processes also diversified.

The fifth stage

First semester

Clinical chemistry: This lesson is concerned with liver function, kidney function disorders, cellular metabolism of carbohydrates, plasma lipids and lipoprotein. The lesson includes everything relatedQHypothalamic glands, adrenal glands, pituitary glands, and thyroid function tests.

Laboratory training: This lesson is intended to teach students how to acquire practical skills in the field of hematology, biochemistry, medical microbiology, serology, and how to conduct analyzes for each disease case, including drawing blood samples, examining urine samples, bacterial culture, and writing clinical reports according to the results obtained from these tests. Condition.

Program accreditation
nothing

Other external influences
The practical aspect of academic subjects, seminars with a variety of content, and graduation projects.

Program structure				
comments *	**percentage**	**Study unit**	**Number of courses**	**Program structure**
				Enterprise requirements
				College requirements
		32	10	**The requirementsbranch**
				summer training
				Other

* Notes may include whether the course is core or elective.

Program description					
Credit hours		**Name of the course or course**	**Course or course code**	**Seme ster**	**Year/level**
practical	**theor etical**				
2	3	Human Biology	111	F1	First stage
2	2	Histology	127	F2	
2	1	Human Anatomy	127		
2	3	Microbiology I	212	F1	Second stage
2	3	Microbiology II	227	F2	
2	3	Pathology	315	F1	Third stage
2	3	Biochemistry I	314		
2	3	Biochemistry II	329	F2	
2	3	Clinical Chemistry	514	F1	Fifth stage
2	0	Laboratory Training	515		
2	0	Laboratory Training		F2	

Expected learning outcomes of the programme

Knowledge

1- The student gain the ability to understand modern and advanced scientific knowledge in clinical laboratory sciencesIn addition to their understanding of the various principles and basics of these sciences.

2-That students have the abilityTo understand the sciences related to pharmacy, including medical, biological and chemical sciences.

3- Students gain experience in diagnosing diseases through laboratory tests and pathological analyses.

Skills

1-Acquiring the skill of appropriate medical diagnosis for minor medical conditions and linking it scientifically to their pharmaceutical, life and chemical expertise.

2-Training students to conduct medical laboratory analyses and writing medical reports that contribute to diagnosis.

3-Training and qualifying students to work with the necessary skills on advanced diagnostic devices and to be influential and effective in health institutions..

Values

1-Theory Lectures: It uses illustrations, scientific diagrams, and presentation techniques, such as using PowerPoint or smart screens.

2- Practical Laboratories: It focuses on conveying the practical aspect of academic subjects through practical experiments, models, and scientific atlases.

3-Seminars, written and oral examinations, writing scientific reports and homework.

Teaching and learning strategies

1- Clarification and scientific explanation material through presentation and recitation heoretical and practical lectures.

2- Interactive discussions with students during the presentation of the scientific material.

3- Graduation projects for the completed stages and their discussion.

Evaluation methods
1- Monthly and quarterly written exams. 2- Surprise quizzes, in addition to homework. 3– Writing scientific reports and providing seminars. 4– Scientific discussion during the lesson and evaluating the individual practical skills of the students inside the laboratory.

1. Faculty

Faculty Members

Academic Rank	Specialization		Special Requirements/Skills (if applicable)		Number of the teaching staff	
	General	Special			Staff	Lecturer
Professor	Biology	Medical mycology			⊗	
Professor	Biology	Immunity			⊗	
Professor	Chemistry	Pharmaceutical chemistry			⊗	
Professor	Pharmacy	Clin. Lab. Sciences			⊗	
Professor	Biology	Bacteriology			⊗	
Professor	Biology	Immunity			⊗	
Assist. prof.	Biology	Immunity			⊗	
Assist. prof.	Biology	Microbiology			⊗	
Assist. prof.	Biology	Medical microbiology			⊗	
Assist. prof.	Biology	Biotechnology			⊗	
Assist. prof.	Biology	Biotechnology			⊗	
Assist. prof.	Biology	Biology			⊗	

Assist. prof.	**Food sciences**	**Human nutrition**			⊗	
Assist. prof.	**Biology**	**Tissue culture**			⊗	
Assist. prof.	**Biology**	**Human Genetics**			⊗	
Lecturer	**Biology**	**Parasitology**			⊗	
Lecturer	**Chemistry**	**Clinical chemistry**			⊗	
Lecturer	**Biology**	**Medical microbiology**			⊗	
Lecturer	**Biology**	**Microbiology**			⊗	
Lecturer	**Biology**	**Microbiology**			⊗	
Lecturer	**Biology**	**Microbiology**			⊗	
Lecturer	**Chemistry**	**Biochemistry**			⊗	
Lecturer	**Biology**	**Histology**			⊗	
Lecturer	**Pharmacy**	**Pathology**			⊗	
Lecturer	**Chemistry**	**Biochemistry**			⊗	
Lecturer	**Pharmacy**	**Clinical chemistry**			⊗	
Lecturer	**Pharmacy**	**Clinical chemistry**			⊗	
Assist. lecturer	**Biology**	**Histology**			⊗	
Assist. lecturer	**Biology**	**Mycology**			⊗	
Assist. lecturer	**Pharmacy**	**Clinical chemistry**			⊗	
Assist. lecturer	**Pharmacy**	**Clinical chemistry**			⊗	
Assist. lecturer	**Chemistry**	**Biochemistry**			⊗	
Assist. lecturer	**Veterinarian**	**Pathology**			⊗	

Professional development
Participation in workshops, scientific seminars and conferences.
Professional development for faculty members
1-Participation in the workshops and the seminars scientific and the discussion inside and outside the college. 2-Participation in postgraduate/MA and PhD discussions. 3-Participation in in-person and online scientific conferences. 4-Publishing scientific research.

Acceptance standard
Central Admission / Ministry of Higher Education and Scientific Research.

The most important sources of information about the program
-Scientific books approved by the Ministry of Higher Education and Scientific Research. -Scientific research available in libraries or the Internet.

Program development plan

Program skills chart															
Learning outcomes required from the programme												Essential or optional ?	Course Name	Course Code	Year/level
Value				Skills				Knowledge							
C4	C3	C 2	C1	B4	B3	B2	B 1	A4	A3	A2	A1				
/	/	/	/	/	/	/	/	/	/	/	/	Basic	Human Biology		The first stage /
/	/	/	/	/	/	/	/	/	/	/	/	Basic	Histology		
/	/	/	/	/	/	/	/	/	/	/	/	Basic	Human Anatomy		
/	/	/	/	/	/	/	/	/	/	/	/	Basic	Microbiology 1		The second stage /
/	/	/	/	/	/	/	/	/	/	/	/	Basic	Microbiology 2		
/	/	/	/	/	/	/	/	/	/	/	/	Basic	Pathology		The third stage /
/	/	/	/	/	/	/	/	/	/	/	/	Basic	Biochemistry I		
/	/	/	/	/	/	/	/	/	/	/	/	Basic	Biochemistry II		
/	/	/	/	/	/	/	/	/	/	/	/	Basic	Clinical Chemistry		The fifth stage /
/	/	/	/	/	/	/	/	/	/	/	/	Basic	Lab. Training		

Course structure					
Evaluation method	**Learning method**	**Name of the unit or topic**	**Required learning outcomes**	**hours**	**The week**
1- Oral discussions in the hall and written tests. 2-Mid-semester and end-of-semester exams. 3-Laboratory reports	Educational lectures Theory and practical	Reviving a human being	A study in the science of human life Study of cell structure Study of the nature and structure of tissues, bones and cartilage Nervous system (central and peripheral). nutrition Digestive system (mouth, esophagus, stomach) Digestive system (intestines) Excretory and respiratory system Human genetics (chromosomes and semi-lethal genes) Skin Blood circulation Immunity (inflammation, immunity, blood, immunity to disease)	3 theory 2 practical	15

Course evaluation
Theoretical and practical subjects are worth 50 marks, while only the theoretical courses are worth 30 marks and include written exams during lectures and attendance, in addition to semester and end-of-semester exams.

Learning and teaching resources	
1- A text book of Human biology by j.k. INGLIS. 2- Human Biology by Sylvia & Windelspecht-	
There are many sources that can be relied upon on the Internet	Electronic references, Internet sites

Course description form

Course name:
Human Biology
Course Code:
111
Semester/year :quarterly
First semester
Date this description was prepared:
2024
Available attendance forms:
First stage
Number of study hours (total)/number of units (total):

45 hours first semester, 3 hours per week
Name of the course administrator (if more than one name is mentioned)
Dr. Dawod Chalob Hillail Email:
Dr. Kawthar Touma Khalaf

Course objectives

1. Understanding and studying biological science of a human body.
2. Definition of student and give it all scientific information regarding species, cells and tissues found in the human body.

Teaching and learning strategies

Course outcomes, teaching, learning and evaluation methods

A- Cognitive objectives

Theoretical application to practical laboratory material.
Statement of knowledge.

B- The skills objectives of the course

Conducting oral and written evaluation.
Operational reports.

Teaching and learning methods

1- Theoretical lectures in the classroom.
2- Educational laboratories.
3- Conduct scientific research.

Evaluation methods

1- Oral discussions in the hall and written tests
2-Mid-semester and end-of-semester exams.
3- Laboratory reports.
5- Weekly or bi-weekly examinations in the laboratory.

Learning methods and learning

1- Training and attending lectures.
2- Seminars and meetings every week.
3- Scientific research.
4- Work experiences.

Methods

1- Final exams
-2 mid-term exams
-3 laboratory exams and reports

Course structure

Evaluation method	Learning method	Name of the unit or topic	Required learning outcomes	hours	The week
1- Oral discussions in the hall and written tests. 2-Mid-semester and end-of-semester exams. 3-Laboratory reports	Educational lectures using scientific references	Biology	biology	2	1
		Cell	cell	2	2
		Tissues, bone and cartilages	Tissues, bones and cartilage	3	3
		Nervous system (central & peripheral)	Central and peripheral nervous system	4	4-5
		Nutrition	nutrition	2	6
		Digestive system (Mouth, Esophagus, Stomach)	Digestive system (mouth, esophagus and stomach)	2	7
		Digestive system (intestine)	Digestive system (intestines)	1	8
		Excretory system & respiration	The excretory system and the respiratory system	3	9
		Human genetics (chromosomes & semi-lethal genes)	Human genetics	3	10
		Skin Circulatory system	Skin Circulatory device	2 3	12-11
		Immunity (Inflammation, immunity & the blood), immunity to disease)	Immunology	3	15-13

Course evaluation

Distribution is as follows: 40 degreesA quarterly and practical exam and daily exams for the first semester60Score of the end of the first semester exam (first semester final).
Learning and teaching resources
1- A text book of Human biology by j.k. INGLIS. 2- Human Biology by Sylvia & Windelspecht

There are many sources that can be relied upon on the Internet	Electronic references, Internet sites

Course description form

Course Name:
Human anatomy
Course Code:
127
Semester/the year:
Second semester
Date this description was prepared:
2024
Available attendance forms:
The first stage
Number of study hours (total)/number of units (total):
30 hour\First semester, 2 an hour a week
Name of the course administrator (if more than one name is mentioned)
Dr. Rawa Salem Hamid
Dr. Tamadur Hamed Wadi
Course objectives
– Study of the general structure of the human body. – Study the anatomy of different body systems And knowledge of its functional and histological composition.
Teaching and learning strategies

Cognitive objectives-
1- Knowledge of anatomical structure for body organs.
2- Knowledge of anatomical sites and tissues in the body.
3- Structure of organs and their anatomical location within each part of the body.
4- Identify the relationship of members to each other.

Headquarters' skills objectives.
1- Give a comprehensive idea of the anatomical sites in the body.
2- Explaining the anatomical structure of all body systems.
3- Give an anatomical description of all the internal and external organs of the human body and their relationship each other.

Teaching and learning methods
-Discussing group work in the laboratory
-Using scientific references

Evaluation methods
-Surprising, inferential questions during the discussion between the two sides
-Written exams.

Course structure

Evaluation method	Learning method	Name of the unit or topic	Required learning outcomes	hours	The week
-Daily oral tests and exams. Weekly and monthly editorial	Educational lectures / theoretical and practical	Circulatory system: Location of vascular system (heart, arteries, veins)	Circulatory device	1	1
		Circulatory system; Location of lymphatic system (Lymphatic capillary	Circulatory device		
		Lymphoid tissue: location of the (Thymus gland, Spleen & Lymph nodes))	Lymphatic system	1	2
		Lymphoid nodule (MALT) & tonsils	Lymph nodes	1	3
		Nervous system: Central & Peripheral nervous system by locati	Nervous system	1	4
		Nervous system: Central & Peripheral	Nervous system	1	5
		Respiratory system: Conducting portion (Nose, Nasopharynx, nerv system by location	Respiratory system	1	6
		Digestive system:Location of different parts of digestive tract(GIT) (Oral cavity, Mouth, Esophagus and Stomach)Small intestine, Large	Digestive	1	7

		intestine, Rectum and Anus.			
		Digestive system:Glands associated with the digestive tract by location (Salivary glands, Pancreas, Liverand Gall bladder)	Glands accessory to the digestive system	2	8
		Endocrine system:Location of the pituitary glandLocation of the Adrenal, Thyroid.	Endocrine glands	1	9
		Male reproductive system:Location of the tests Excretory genital ductsExcretory genital gland (Seminal vesicles,Prostate and Cowpers glands	Male reproductive system	2	10
		Female reproductive system: Location of ovary Oviduct, Uterus and Vagina	Female reproductive system	2	11
		Urinary system Location of Kidney & nephrone	Urinary tract	1	12

Course evaluation

Distribution is as follows:
50 degreesA quarterly and practical exam and daily exams for the first semester50Score of the end of the first semester exam ultimate.

Learning and teaching resources

1- Seely's Anatomy and Physiology2 2- Atlas of human anatomy

3- Principles of Human Anatomy

	Electronic references, Internet sites

Course Name:
Histology
Course Code:
127
The semester/The year:
Second Semester
Date this description was prepared:
2024
Available attendance forms:

The first stage

Number of study hours (total)/number of units (total):

45 hour\second semester, 4 an hour at week

Name of the course administrator (if more than one name is mentioned)

Dr. Dawod Chlob Hillail

Dr. Kawthar Touma Khalaf

Dr. Rana Dawod Salman

Course objectives

Help students to understand the principles of histology and give them all scientific information related the types of cells and tissues found in the human body.

Teaching and learning strategies

Course outcomes and teaching, learning and evaluation methods

A- Defined objectives

- Statement of basic knowledge and principles in histology.
- Presentation of various topics in histology.
- Conduct theoretical applications, practical experiments, and rules of measurements in tissues.

B-Objectives Skills For the course.

- Preparing research projects by students.
- Practical reports and scientific discussions.
- Holding conferences and workshops.

C- Teaching and learning methods

1. Theory lectures.
2- Conduct work experiments.
3- Scientific research.
4- Writting a curriculum and supportive clinical reports.
5- Science discussions and study sessions.
6- Home duties

Evaluation methods

1. Mid-term exams and exams quarterly & final.
2. Exams and investigate.
3. Laboratory exams.
4. Lab. reports.

Course structure

Evaluation method	Learning method	Name of the unit or topic	Required learning outcomes	hours	The week
Written and oral exams	Theory and practical lectures	Epithelial tissues	Epithelial tissue		
		Connective Tissues	Connective tissue		
					3
		Muscular Tissues	Muscle tissue		4
		Nervous Tissues	Nervous tissue		
		Circulatory System	Circulatory device		
		Lymphatic System	Lymphatic system		
		Digestive System (Oral cavity)	Digestive system (oral cavity)		
		Digestive System (digestive tract)	Digestive system (gut)		
		Digestive System (digestive glands, liver, pancreas (Gall bladder	Digestive glands, pancreas, liver, bile		
		Urinary System	Urinary tract		
		Reproductive System (female & male)	Male and female reproductive system		
		Accessory glands	Accessory glands		

Course evaluation

Distribution is as follows
40 degrees , a quarterly and practical exam and daily exams for the first semester60Score of the end of the second semester exam.

Learning and teaching resources

Atlas of-Histology with function and clinical correlations (Dongmei Cui), 2011

	Electronic references, Internet sites

Course Name:
Microbiology 1
Course Code:
212
The semester/The year:
First semester
Date this description was prepared:
2024
Available attendance forms:
The second stage
Number of study hours (total)/number of units (total):
45hour\First semester\ 3 an hour a week
Name of the course administrator (if more than one name is mentioned)
Dr. Enas Abdel-Saheb Badi
Dr. Abdule Ilah Abdul Hussein Sahin
Course objectives
Introduction to the sterilization methods used and chemical sterilizers and their effect on bacterial growth, addition to the use of antibiotics. Control diseases and prevent its spread and follow the best methods to control sources of pollution resulting from the presence of these pathogenic bacteria in those areas. Also study pathoge germs in all aspects, phenotype and pathogenicity, its recipes and various components. They are considered contributing factors or being among the causes of disease severity germs.

Teaching and learning strategies

Course outcomes and learning methods

- Defined objectives

--Teaching students how bacterial diagnosis in educational and diagnostic laboratories in the Ministry of Health ar in laboratories and also in Quality control laboratories for laboratories pharmaceutical.

- The student must be on familiarity complete information about how to measure drug doses for patients w chronic infections and who are exposed to injury the bacterial and determine property type especially in ca which requires the use of a drug with effects high sideways.

-Use awareness and guidance Health care about how to use sterilizers and disinfectants and warning about the methodIncorrect use and the side effects it causes may lead to cases satisfying.

B- The skills objectives of the course

-For complete knowledge about the rules Injuries the germ.
-Know the types and breeds germs and how to diagnose them.
- Use of the drug effective against pathogenic bacteria according toa test allergies pharmacokinetics.
-Recognition every pathogenic bacterium is examined from the morphological and anatomical aspects and using the best established diagnostic methods.
-Familiarity complete information on how to control and prevent it from occurring injury epidemiological result of bacterial infection.
- Continuous follow-up of health recommendations and instructions issued by senior medical authorities ar following up on the latest developments For Control and complete elimination dangerous infectious germs and prevent its spread.

The learning methods

1- Lectures review.
2- Conduct science experiments.
3- Home duties.
4- Investigation exams.
5- Methodical and supporting books.

Evaluation methods

1- Oral exams.
2- Investigation exams.
3- Scientific reports.
4- Work exams laboratory.

Course structure

Evaluation method	Learning method	Name of the unit or topic	Required learning outcomes	hours	the week
Daily oral and written tests. Written mid-term and final exams.	Theory and practical lectures	Introduction: Importance of microbiology, History of microbiology	Introduction to microbiology		
		understanding of the morphology, anatomy, physiology and genetics of bacteria in addition, the methods of handling, visualizing, character	Appearance, anatomy, and physiology of microorganisms and methods of their diagnosis		
		Bacterial physiology: physical and chemical growth determinates, growth and growth curves, bacterial reproduction.	Bacterial growth curve		
		enetics: Definition, genetic, element, mutation (spontaneous, Gene transfer, transformation, conjugation, and gene transduction).	Microbial genetics		
		Sterilization (chemical + physical methods).).	Physical and chemical sterilization methods		
		Chemotherapy and sensitivity test	Drug allergy testing and chemotherapy		
		Staphylococci species	Staphylococcus aureus		
		Streptococcus species	Streptococci		
		robic Spore-forming bacteria Bacillus species (B. anthracis, B subtilis, B. cereus).	Aerobic bacilli that form spores		
		stridium perfringens; Clostridium ni; Clostridium botulinum	Anaerobic spore-forming bacilli		
		ynebacterium diphtheria	Diphtheria spores		
		pionibacterium acnes, Listeria	Listeria and Propionibacterium		

		tobacterium tuberculosis; M. leprae	Tuberculosis and leprosy bacilli		
		erobacteriaceae: (E. coli; Klebsiella spp.; obacter, Serratia), nonella, Shigella)	Family Enterobacteriaceae		
		rio, Pseudomonas, Helicobacter pylori, sseria spp., Brucella, eus,	Pseudomonas, B. pylori, Neisseria, Brucella, and Proteus		

Course evaluation
Distribution is as follows: 40 degrees A quarterly and practical exam and daily exams for the first semester 60Score of the end of the first semester exam.
Learning and teaching resources
Medical Microbiology, Jawetz, 2016

	Electronic references, Internet sites

Course Name:
Microbiology 2
Course Code:
227
The semester/The year:
Second Semester
Date this description was prepared:
2024
Available attendance forms:
The second stage
Number of study hours (total)/number of units (total):
60 hour \First semester, 2 an hour a week.
Name of the course administrator (if more than one name is mentioned)
Dr. Enas Abdel-Saheb Badi
Dr. Abdule Ilah Abdul Hussein Sahin

Dr. Suha Haitham Mohammed

Course objectives

Preparing students to become familiar with the branches of medical microbiology by studying three important branches of it, which are parasitology, immunology, and virology, and studying the pathological and diagnostic aspects of each of these sciences and their relationship to human health and society.

Teaching and learning strategies

- Course outcomes, teaching, learning and evaluation methods:

a. Cognitive objectives:

1. Full knowledge of aspects of laboratory diagnosis, evaluating the results of diagnostic tests, and writing medica reports.

B- The skills objectives of the course:

1. Teaching students how to diagnose microscopic organisms in the laboratory by identifying their shapes and phenotypic characteristics.
2. Learn to perform diagnostic tests related to diseases resulting from infection with medical microorganisms.

Methods and learning

1- Lectures review.
2- Conduct science experiments.
3- Home duties.
4- Investigation exams.
5- Methodical and supporting books.

Evaluation methods

1- Oral exams.
2- Investigation exams.

Course structure

Evaluation method	Learning method	Name of the unit or topic	Required learning outcomes	hours	the week
Daily oral and written tests and written mid-term and final exams.	Theoretical and practical lectures	Introduction	The student acquires information about parasitology		
		Intestinal and tissue protozoa (Amoeba (pathogenic and non-pathogenic), Balantidium, Giardia, Trichomonas	The student acquires information about parasitology		
		Haemoflagellates: Leishmania spp.; Trypanosome spp.	The student acquires information about parasitology		

		Sporozoa: Malarial parasites of human; Toxoplasma.	The student acquires information about parasitology		
		Helminthes: Classification, Cestodes (Hymenolepis nana, Taenia spp.), Echinococcus (Hydatid cyst). Hepatic flukes, Trematodes (Blood Flukes: Schistosoma spp). Nematods: Ascaris, Entrobius. Trichuris, Ancylostoma, Necator americans	The student acquires information about parasitology		
		Virology: Introduction, comparison between viruses and bacteria and other microbes; origin of viruses, reproduction, one step growth curve, type of mutations and classification of viruses; RNA viruses: Orthomyxo viruses; Paramyxo viruses; Retro viruses; Hepato viruses; Oncogenic viruses. DNA viruses: Herpes viridae; poxviradeae, adenoviredeae, parvoviruses	The student acquires information in aViruses		
		Immunology: introduction, innate and adaptive immunity, complement, MHC molecule and autoimmune diseases, hypersensitivity, tumor immunity, immunodeficiency, immunological methods.	The student acquires information inImmunology		

Course evaluation

Distribution is as follows:
30 degreesA quarterly and practical exam and daily exams for the first semester70Score of the end of the second semester exam.

Learning and teaching resources

Medical Microbiology, Jawetz, 2016

	Electronic references, Internet sites

Course Name:
Pathophysiology
Course Code:
315
The semester/The year:
3rd Class, 1st Semester
Date this description was prepared:
2024
Available attendance forms:
The third stage
Number of study hours (total)/number of units (total):
60 hour\ the number of course units is 4 units
Name of the course administrator
Dr. Rawa Salem Hamid
Dr. Tamadur Hamed Wadi
Course objectives

- Study of the physiology and pathogenesis of diseases occurring within the body.
- Identify the most prominent clinical signs accompanying the occurrence of diseases.
- To learn about diseases that affect organs in all body systems.

Teaching and learning strategies

A- Course outcomes and teaching, learning and evaluation methods

Cognitive objectives

- Identify the mechanism of disease occurrence from the physiological perspective of the human body.
- Identify the pathological effects during the occurrence of the disease and after recovery from it.
- Identify the clinical symptoms of the disease.

B- The skills objectives of the course

- Giving a comprehensive idea about the pathology of diseases that affect various body systems.
- Clarifying the pathology of the disease and the pathological changes accompanying the disease.
- Giving an anatomical description of all the internal and external organs of the human body and their relations to each other.

Teaching and learning methods
-Theoretical lectures in the classroom.
- Educational laboratories.
- Conducting scientific research.
- Various office research.

Evaluation methods
- Oral discussions in the hall and written exams.
-Mid-term exams and end-of-semester exams.
- Laboratory reports.

Course structure

Evaluation method	Learning method	Name of the unit or topic	Required learning outcomes	hours	The week
Oral and writtin exams.	1-Use PowerPoint to present the lectureAnd the blackboard	Introduction	Introduction to pathophysiology		
		Cell injury and tissue response; Degeneration; Necrosis; Atrophy; Hypertrophy; Metaplasia and Calcification; Inflammation and Repair	aCell injury, tissue response, and necrosis		
		Disorders of electrolytes, water and acid–base balances: Hyper and Hyponatremia; Hyper and Hypokalemia; Syndrome of inappropriate secretion of ADH; Diabetes insipidus; Metabolic acidosis and alkalosis; Respiratory acidosis and alkalosis.	Disturbances of electrolytes, water and acid-base balance: hypernatremia and hyponatremia. Hyper and hypokalemia. Excretion syndromeADH inappropriately. Diabetes insipidus; Metabolic acidosis and alkalosis. Respiratory acidosis and alkalosis		
		Disorders of cardiovascular system: hyperemia; Congestion and edema; Thrombosis; embolism and infarction; Shock; Coronary heart disease and MI; Rheumatic heart disease; Heart failure; Acute pulmonary edema; Essential hypertension; Secondary hypertension; Malignant hypertension; Hypotension; Aneurysm versus varicose veins;	Cardiovascular system disorders: hyperemia. Congestion and edema. Coagulation. Embolism and infarction. shock; Coronary heart disease andMI. Rheumatic heart disease; Heart failure; Acute pulmonary edema. Essential hypertension. Secondary hypertension. Malignant hypertension.		

			Reduction of Blood pressure. Aneurysms versus varicose veins.		
		Disorders of respiratory system: pneumonias; Tuberculosis; Respiratory distress syndrome; Bronchial asthma; Emphysema and bronchiectasis; Cystic fibrosis; Pulmonary embolism; Pulmonary hypertension.	Respiratory disorders: pneumonia. Tuberculosis; Respiratory distress syndrome; Bronchial asthma. Emphysema and bronchiectasis. cystic fibrosis; Pulmonary embolism; Pulmonary artery hypertension.		
		Disorders of the renal system: Nephrotic syndrome; Glomerulonephritis; Diabetic glomerulosclerosis; Hypertensive glomerular disease; Pyelonephritis; Drug related nephropathies; Acute renal failure; Chronic renal failure	Renal system disorders: nephrotic syndrome. Glomerulonephritis. Diabetic glomerulosclerosis. Glomerular disease, high blood pressure. Pyelonephritis. Drug-associated nephropathy. Acute kidney failure; chronic		
		Disorders of GI and hepatobiliary systems: Peptic ulcer and Zollinger –Ellison syndrome; Irritable bowel syndrome; Crohn's disease; Diarrhea; Celiac disease; Viral hepatitis; Primary biliary cirrhosis; Liver failure; Cholelithiasis.	Gastrointestinal and hepatobiliary disorders: peptic ulcer and Zollinger-Ellison syndrome. Irritable bowel syndrome; Crohn's disease; Diarrhea; celiac disease; Hepatitis; Primary biliary cirrhosis; Cirrhosis; Cholelithiasis.		
		Disorders of thyroid function: Hypothyroidism. Hyperthyroidism. Graves' disease. Thyrotoxicosis	Thyroid function disorders: hypothyroidism. Hyperthyroidism. Graves' disease. Thyrotoxicosis		
		Disorders of adrenal function: Cushing syndrome. Adrenal cortical insufficiency (primary and secondary). Congenital adrenal hyperplasia. Pheochromocytoma.	Disorders of adrenal function: Cushing's syndrome. Adrenal cortex insufficiency (primary and secondary). Congenital adrenal hyperplasia.		

			Pheochromocytoma		
		Diabetes mellitus and metabolic syndrome;	Diabetes and metabolic syndrome.		
		Dyslipoproteinemia	Dyslipoproteinemia		
		Neoplasia	Tumors		
		Metabolic &rheumatic disorders of skeletal system: - Osteoporosis, osteomalacia & rickets, rheumatoidarthritis, systemic lupus erythromatosus, ankylosing spondylitis, gout, osteoarthritis syndrome	Metabolic and rheumatic disorders of the skeletal system: -osteoporosis, osteomalacia and rickets, rheumatoid arthritis, systemic lupus erythematosus, ankylosing spondylitis, gout, osteoarthritis syndrome.		
		Alterations in the immune response (pathophysiology of immunopathology): - Hypersensitivity disorders. - Transplantation immunopathology. - Immunodeficiency disorders.	Changes in the immune response (pathophysiology of immune diseases): - Hypersensitivity disorders. - Immune diseases through laryngeal transplantation. - Immunodeficiency disorders.		

Course evaluation

Distribution is as follows:
40 degreesA quarterly and practical exam and daily exams for the second semester60Score of the end of the second semester exam (second semester final).

Learning and teaching resources

Essentials in Pathophysiology by: Carol Mattson Porth 2nd Ed.-
pathophysiologly of disease: an introduction to clinical medicine 7ed.Cary D-Hammer, editor Stephen J. McPhee editor.

Course Name:
Biochemistry I
Course Code:
314
The semester/The year:
3rd Class, 1st Semester
Date this description was prepared:
2024
Available attendance forms:
Third stage
Number of study hours (total)/number of units (total):
60 hours / four units
Name of the course administrator (if more than one name is mentioned)
Dr. Bassem Jassim Hamid
Dr. Rafif Amer Abdul Jabbar
Course objectives
Assist the student to understands the material Biochemistry and how to use the devices available in laboratory , th the necessity of learning and experience is emphasized In the field of teaching, discussing group work, and evaluating the writing of self-reports using scientific references.
Teaching and learning strategies
Course outcomes and teaching, learning and evaluation methods **Cognitive goals** – Assesst the concepts of selected topics in basics of Biochemistry. – To apply theory to practical experiments and the rules of measurements in chemistry of life. – Statement of knowledge and basic principles in biochemistry. **Skills and objectives of the course.** – Discussing the results and group works in the laboratory. – Using scientific references related to biochemistry. **Methods and learning** - Theory lectures. - Conduct work experiments. - Scientific research.

-Science discussions and study sessions.

Evaluation methods

1. Mid-term exams and final exams.
3. Home duties.
4. Scientific reports.
5. Laboratory exam.

Course structure

Evaluation method	Learning method	Name of the unit or topic	Required learning outcomes	hours	The week
Daily tests, semi-quarterly written exams and final exams.	Use PowerPoint to present the theory and practical lectures.	Introduction to the macromolecules biochemistry: Definitions and terms; proteins, enzymes, DNA; Clinical value	Introduction to Macromolecule Biochemistry: Definitions and Terminology; Proteins, enzymes and DNA. Clinical value		
		Amino acids: Structures of AA (table of standard AA abbreviation and side chain); Classification, properties, isomerism	Amino acids: structuresAA (standard AA abbreviation table and side chain); Classification, properties and isomerism		
		Amino acids: Chemical reactions, witter ions, titration curve Calculating isoelectric point values. Examples and questions. Non standards AA: Structures, existence and clinical value.	Amino acids: chemical reactions, zwitter ions, titration curve Calculating isoelectric point values. Examples and questions. non StandardsAA: Structures, existence and clinical value.		
		Peptides: Peptide bond, resonance forms, isomers, physical properties and chemical reactions. Essential polypeptides in the human body, structures, roles and clinical values.	Amino acids: chemical reactions, zwitter ions, titration curve Calculating isoelectric point values. Examples and questions. non StandardsAA: Structures, existence and clinical value.		
		Proteins: Structure and conformations of proteins, primary structure, secondary structure (4 helix, 5 sheet), tertiary structure, quaternary	Proteins: Protein structure and conformations, primary structure, secondary structure (4 helices, 5		

		structure. Classification, synthesis, cellular functions (Enzymes, cell signaling, and ligand transport, structural proteins), protein in nutrition.	sheets), tertiary structure, quaternary structure. Classification, synthesis, cellular functions (enzymes, cell signaling, transport ligands, structural proteins), and protein in nutrition		
		Denaturation of proteins and protein sequences: Determining AA composition, N-terminal AA analysis, C-terminal AA analysis, Edman degradation, prediction protein sequence from DNA/RNA sequences. Methods of protein study: Protein purification, cellular localization, proteomics and bioinformatics, structure predication and simulation	Denaturation of proteins and protein sequences: conformation determinationAA, N-terminal AA analysis, C-terminal AA analysis, Edman degradation, protein sequence prediction from DNA/RNA sequences. Protein study methods: protein purification, cellular localization, proteomics, bioinformatics, structure prediction and simulation.		
		Carbohydrates: Chemistry and classification, biomedical importance, classification of CHO, Stereochemistry of monosaccharides, metabolism of CHO; Physiologically important monosaccharides, glycosides, disaccharides, polysaccharides.	Carbohydrates: chemistry, classification, biomedical importance, classificationCHO, monosaccharide stereochemistry, CHO metabolism; Physiologically important monosaccharides, glycosides, disaccharides and saccharides.		
		Lipids: Introduction, classification of lipids, fatty acids (FA), nomenclature of FA, saturated FA, unsaturated FA, physical and physiological properties of FA, metabolism of lipids. Phospholipids, lipid peroxidation and antioxidants, separation and identification	Fats: introduction, classification of fats, fatty acids (FA), FA nomenclature, saturated FA, unsaturated FA, physical and physiological properties of FA, lipid metabolism. Phospholipids, lipid		

		of lipids, amphipathic lipids.	peroxidation and antioxidants, lipid separation and identification, amphipathic lipids		
		Enzymes: Structures and mechanism, nomenclature, classification, mechanisms of catalysis, thermodynamics, specificity, lock and key model, induced fit model, transition state stabilization, dynamics and function, allosteric modulation. Biological function, cofactors, coenzymes, involvement in diseases	Enzymes: structures and mechanism, nomenclature, classification, catalytic mechanisms, thermodynamics, specificity, lock and key model, induced conformational model, transition state stabilization, dynamics and function, allosteric modification. Biological function, cofactors, coenzymes, involvement in diseases		
		Kinetics: General principles, factors affecting enzyme rates (substrate conc., pH, temperature, etc), single-substrate reaction (MichaelisMenten kinetics), kinetic constants. Examples of kinetic questions and solutions	Kinetics: general principles, factors affecting enzyme rates (substrate cohesion, pH, temperature, etc.), single-substrate interaction (Michelis-Menten kinetics), kinetic constants. Examples of motor questions and solutions		
		Enzyme inhibition: Reversible inhibitors, competitive and non-competitive inhibition, mixed-type inhibition, Irreversible inhibition. Inhibition kinetics and binding affinities (ki), questions and solutions	Enzyme inhibition: reversible inhibitors, competitive and noncompetitive inhibition, mixed inhibition, and irreversible inhibition. Inhibition kinetics and binding affinities (KI), questions and solutions		
		Control of activity and uses of inactivators; multi-substrate reactions, ternary-complex mechanisms, ping-pong	Control the activity and uses of disruptors; Multi-substrate reactions,		

		mechanisms, non-Michaelis-Menten kinetics, pre-steady-state kinetics, chemical mechanisms	complex ternary mechanisms, ping-pong mechanisms, non-Michael-Menten kinetics, pre-steady-state kinetics, chemical mechanisms		
		Nucleic Acid: Chemical structure, nucleic acid components, nucleic acid bases, nucleotides and deoxynucleotides (Properties, base pairing, sense and antisense, super-coiling, alternative structures, quadruple structures	DNA: chemical structure, components of DNA, DNA bases, nucleotides and deoxynucleotides (properties, base pairing, meaning and inverse, supercoiling, alternative structures, quaternary structures		
		Biological functions of DNA: Genes and genomes, transcription and translation, replication	Biological functions of DNA: genes and the genome, transcription and translation, replication		
		Biochemistry of extracellular and intracellular communication: Plasma membrane structure and function; Biomedical importance, membrane proteins associated with lipid bilayer, membranes protein composition, dynamic structures of membranes, a symmetric structures of membranes	Biochemistry of extracellular and intracellular communications: structure and function of the plasma membrane; Biomedical importance, lipid bilayer-associated membrane proteins, membrane protein composition, dynamic structures of membranes, homeostatic structures of membranes		
		Artificial membranes model, the fluid mosaic model, membrane selectivity, physiological functions of plasma membranes.	Artificial membrane model, fluid mosaic model, membrane selectivity, physiological functions of plasma membranes.		
		Biochemistry of the endocrine system: Classification of hormones, biomedical importance, the target cell concept and hormone receptors, biochemistry of	Biochemistry of the endocrine system: classification of hormones, biomedical importance, concept of		

		hormone action and signal transduction	target cell and hormone receptors, biochemistry of hormone action and signal transduction		
		Special topics: Nutrition, digestion, and absorption. Biomedical importance, digestion and absorption of carbohydrates, lipids, proteins, vitamins and minerals; energy balance. Biochemistry of hemostasis and clot formation	Special Topics: Nutrition, Digestion and Absorption. Biomedical importance: Digestion and absorption of carbohydrates, fats, proteins, vitamins and minerals. Energy balance. Biochemistry of hemostasis and clot formation		

Course evaluation

Distribution is as follows:
40 degrees quarterly and practical exam and daily exams for the second semester60Score of the end of the second semester exam (second semester final).

Learning and teaching resources

Lippincott's illustrated reviews: Biochemistry, 2011.

	Electronic references, Internet sites

Course Name
Biochemistry II
Course Code:
329
The semester/The year:
3rd Class, 2nd Semester
Date this description was prepared:
2024
Available attendance forms:
Third stage
Number of study hours (total) / number of units (total):
60 hours / four units
Name of the course administrator (if more than one name is mentioned)
Dr. Bassem Jassim Hamid
Dr. Rafif Amer Abdul Jabbar
Course objectives
Helping to understand the principles of biochemistry, and preparing the pharmacy students for a successful chemical career.
Teaching and learning strategies
Course outcomes and learning methods **Defined objectives** - The student's knowledge of all the factors that came across medicine inside the body. - Know the types of metabolism of the body. - Know the factors that affect the body reactions. **Skills objectives for the course** 1-Acquiring the skill of studying accommodate for medicine and factors influencing this medicine inside the body. **Learning methodsYesMAnd learning** 1- Theory lectures. 2- Conduct work experiments. 3- Scientific research. 4- Practise of writting a curriculum and supportive.

Methods and learning
1. Mid-term exams and exams quarterly.
2. Short Tests and investigate.
3. Laboratory exams and reports.

Course structure

Evaluation method	Learning method	Name of the unit or topic	Required learning outcomes	hours	The week
Daily and weekly tests, along with semi-semester written exams.	Theory and practical lectures.	Bioenergetic	Bioenergy		
		Biological oxidation.	Biological oxidation		
		The respiratory chain and oxidative phosphorylation.	Respiratory chain and oxidative phospholipids		
		Over view of metabolism.	Overview of metabolism		
		Citric acid Cycle.	H cycleaCitric acid.		
		Glycolysis.	Glycolysis.		
		Metabolism of glycogen	Glycogen metabolism		
		Gluconeogenesis.	Glucose formation		
		Pentose phosphate pathway and other pathways of hexose metabolism.	MethodsPentose phosphate and A pathwaysAlsoOther hexagons.		9
		Biosynthesis of fatty acids.	Biosynthesis of fatty acids	3	10
		Oxidation of fatty acids	Fatty acid oxidation	2	
		Metabolism of acylglycerol and sphingolipids.	Also acylglycerol and sphingolipids.		
		Lipid transport and storage.	Transport and storage of fat		
		Cholesterol synthesis, transport, and excretion.	Cholesterol synthesis, transport and secretion		
		Biosynthesis of the Nutritionally Nonessential Amino Acids.	Biosynthesis of nutritionally non-essential amino acids.		

		Catabolism of Proteins & Amino Acid Nitrogen	DemolitionProteins and amino acids nitrogen		
		Conversion of Amino Acids to Specialized Products.	Converting amino acids into specialized products.		
		Porphyrins & Bile Pigments	Porphyrins and bile pigments		

Course evaluation

- Scientific discussion within the lessons.
- Reports and homeworks.
- Written examinations.

Learning and teaching resources

Lippincott's illustrated reviews: Biochemistry, 2011.

	Electronic references, Internet sites

Course Name
Clinical Laboratory Training
Course Code:
515
The semester/The year:
5th Class, 1st Semester
Date this description was prepared:
2024
Available attendance forms:
Fifth stage
Number of study hours (total)/number of units (total):
Two hours per week / one unit

Name of the course administrator (if more than one name is mentioned)
Dr. Zuhair Ghaleb Al Shaheen
Course objectives
Provide the student with general information about the chemical tests and biological principles of laboratory diagnosis.
Teaching and learning strategies
Course outcomes and teaching, learning and evaluation methods **A- Defined objectives** Helping to understand the analyses chemical and biological tests. Statement of knowledge and basic principles in pain training subject experiments. **B- The skills objectives of the course** Providing the student with some skillsthe basicWhichconsidered asNecessary for future studies such as analyzing the resultsRecording it regarding pathological analyzes and preparing medical reports. **Methods and learning** 1- Lectures review. 2- Conduct science experiments. 3- Study episodes. 4- Home dutie. 5- Investigation exams. 6- He wrote a curriculum and supportive. **Evaluation methods** 1- Oral exams. 2- Investigation exams. 3- Scientific reports.

Course structure					
Evaluation method	**Learning method**	**Name of the unit or topic**	**Required learning outcomes**	**hours**	**The week**
A daily oral and written test. A written mid-term exam, and the final exams.	Theory and practical lectures.	Diagnostic test basics, collecting & transporting specimens, venipuncture, urine specimen, stool specimen.	Basics of diagnostic tests, sample collection and transportation,a sampleIntravenous, urine sample, stool sample.		
		Biochemical tests: Fasting blood glucose, Post-prandial glucose, Oral glucose tolerance test	Biochemical tests:Kfasting blood glucose,KPostprandial glucose tolerance testKOral glucose		
		Blood urea, blood creatinine, creatinine clearance, uric acid.	Blood urea, blood creatinine, creatinine clearance, uric acid.		
		Cholesterol, lipoproteins, triglycerides	Cholesterol, lipoproteins, triglycerides		
		Blood proteins, Bilirubin.	Blood proteins, bilirubin		
		Calcium, inorganic phosphate, serum chloride	Calcium, inorganic phosphate, serum chloride		
		Alkaline phosphatase, Acid phosphatase, Alanine amiotransferase, Aspartate aminotransferase, Lactate dehydrogenase, Creatine phosphokinase	Alkaline phosphatase, acid phosphatase, alanine aminotransferase, aspartate aminotransferase,		

			lactate dehydrogenase, creatine phosphokinase.		
		Serological tests: VDRL, ASO-Titer, Hepatitis tests.	Serological tests:VDRL, ASO-Titer, Hepatitis tests		
		C-reactive protein test, Rheumatic factor test, Rosebengal test, Typhoid fever test (Widal test), Pregnancy Test	C-reactive protein test, rheumatic factor test, Rospingale test, typhoid fever test (testAndydall), pregnancy test		
		General urine examination, urine specimen collection	General urine examination and urine sample collection		
		Hematological tests: RBC count, Hb, PCV, RBC indices, WBC count, Platelets count	Blood tests: red blood cell count,Hb, PCV, RBC indicators, white blood cell count, platelet count		
		Blood typing, Coombs test, Bleeding time, ESR.	Blood type, Coombs test, bleeding time,ESR		
		Microbiological tests: culture and sensitivity tests, Staining methods	Microbiological tests: testsTransplantationAnd sensitivity, methodsPigment		
		Culture media, Enriched culture media for general use	Cultivation and support media for general use		
		Tests for identification of bacteria, Disk diffusion tests of sensitivity to antibiotics, Choice of drugs for disk test, bacterial disease and their laboratory diagnosis	T testsDiagnosisBacteria, disk diffusion tests for antibiotic susceptibility, selection of drugs for disk testing, bacterial		

			diseases and their laboratory diagnosis		

Course evaluation
Distribution is as follows: 40 degreesA quarterly and practical exam and daily exams for the second semester60Score of the end of the second semester exam (second semester final).

Learning and teaching resources	
Lehninger (principles of biochemistry). Medical Microbiology, Jawetz.	
	Electronic references, Internet sites

Course Name:
Clinical Chemistry
Course Code:
514
The semester/The year:
5th Class, 1st Semester
Date this description was prepared:
2024
Available attendance forms:
Fifth stage
Number of study hours (total)/number of units (total):
60 hours / 4 academic units
Name of the course administrator (if more than one name is mentioned)
Dr. Falah Hassan Sheri
Dr. Qutaiba Abdul Karim Qasim

Course objectives

Helping to understand the principles of clinical chemistry.

Teaching and learning strategies

Course outcomes, teaching, learning and evaluation methods

Cognitive objectives

- Statement of basic knowledge and principles in clinical chemistry.
- Theoretical application to practical experiments and rules of measurements in clinical chemistry.

Skills objectives for the course:

- Preparing practical reports related to clinical chemistry.
- Preparing research projects, workshops, and scientific conferences related to the subject.

Teaching and learning methods

- Use scientific sources.
- Scientific discussions of the results obtained within the laboratory.

Evaluation methods

1- Mid-term exams and final exams
2-Daily oral and written exams
3-Seminars
4-Practical laboratory exams
5-Laboratory reports

Course structure

Evaluation method	Learning method	Name of the unit or topic	Required learning outcomes	hours	the week
A daily oral and written test. A written midterm exam and the final exams.	Theoretical and practical lectures	Disorders of Carbohydrates metabolism, Hyperglycemia & Diabetes mellitus, Hypoglycemia	Disorders AYesCarbohydrates, hyperglycemia, diabetes, hypoglycemia		
		Disorders of lipid metabolism.	Disorders AYesFats.		
		Live Function Tests.	Function testsLiver		
		Kidney Function Tests	Kidney function tests		
		Diagnostic enzymology.	Diagnostic enzymes		
		Hypothalamus & pituitary	Diseases of the		

		endocrinology, disorders of anterior pituitary hormones, disorders of adrenal gland, hypopituitrism.	hypothalamus and pituitary endocrine glands, hormone disorders of the anterior pituitary gland, adrenal gland disorders, hypopituitarism.		
		Reproductive system, disorders of gonadal function in males & females, biochemical assessment during pregnancy.	Reproductive system, disorders of gonadal function in males and females, biochemical evaluation during pregnancy		
		Tumor markers.	Tumor markers		
		Drug interaction with laboratory tests.	Drug interaction with brain scansTwilderness.		
		Disorders of calcium metabolism	DisturbancesAlsoCalcium		
		. Acid-base disorders.	Disturbances HaBase fluorescence.		

Course evaluation

- Surprising oral questions and scientific discussions during the lesson.
- Written exams.

Learning and teaching resources

Clinical Chemistry & Metabolic Medicine, Crook, 2006.
2- Clinical Chemistry, Kaplan, 2003.
Lippincott's illustrated reviews: Biochemistry, 2011.

	Electronic references, Internet sites

Academic Program Description Form

University Name: **Basrah**

Faculty/Institute: **Pharmacy collage**

Scientific Department: **Pharmacognosy**

Academic or Professional Program Name: .....

Final Certificate Name: .....

Academic System: .....

Description Preparation Date:

File Completion Date: **17/ 4/ 2024**

Signature:

Head of Department Name:

Dr. **Ula Mohammed Noor**

Date:

Signature:

Scientific Associate Name:

Dr. Karmallah Shakir Mahmud

Date:

The file is checked by:

Department of Quality Assurance and University Performance

Director of the Quality Assurance and University Performance Department:

Dr. Rana Hasan Shamki

Date:

Signature:

Approval of the Dean

1. Program Vision

Providing a high-quality scientific level to graduate understanding and skilled pharmacists to ensure the best services to society and to reach a leadership position in the field of scientific research related to medicinal plants .

2. Program Mission

Spreading awareness among people about how to deal with medicinal plants scientifically and objectively for the sake of the health and safety of community members and avoiding random dealing with herbs due to the harm and negative side effects it causes on the health of citizens.

3. Program Objectives

Mathematics and Biostatistics: Gives students the ability to deal with the concept of mathematics and statistics, emphasizes the knowledge and skills required to efficiently perform the duties and responsibilities of a pharmacist. The course covers the concept of basic mathematics and the application of biostatistics in the medical field. Upon completion of the course, students will be able to understand the applications of statistics in the medical field.

Computer Science: Gives students the ability to deal with the concept of computer science, and emphasizes the knowledge and skills required to efficiently perform the duties and responsibilities of a pharmacist. The course deals with the basic concept of computers and its application in human life and the medical field. Upon completion of the course, students will be able to understand computer terminology, abbreviations used to describe the lecture, and application programming languages.

Medical Physics: Gives students the ability to deal with physics concepts, and emphasizes the knowledge and skills necessary to perform and efficiently perform

the duties and responsibilities of a pharmacist. The course deals with the concept of basic physics and the application of physics in the medical field. Upon completion of the course, students will be able to understand the physical terminology and abbreviation used to describe the lecture, and its application in the medical field.

Pharmacognosy: Study of medicinal plants in terms of classification, plant parts containing active compounds, types of these compounds, methods of their formation within the plant, reasons for their formation, and the possibility of increasing these compounds using various cultivation methods, including tissue culture. In addition to the interest that the graduate of the Faculty of Pharmacy has a great deal of knowledge of medicinal products derived from plants, analysis of active compounds, methods of extraction and separation of these compounds in different ways, how to store them, and methods of using them correctly.

English Language: Improves students' ability to speak English and understand grammar

4. Program Accreditation

No

5. Other external influences

No

6. Program Structure

Program Structure	Number of Courses	Credit hours	Percentage	Reviews*
Institution Requirements				
College Requirements				
Department Requirements				
Summer Training				
Other				

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

7. Program Description

Year/Level	Course Code	Course Name	Credit Hours	
			theoretical	practical
1st Stage		Mathematics and Biostatistics	3	---
1st Stage		Computer Science (1st + 2ed Semester)	---	2
1st Stage		English Language	2	
1st Stage		Medical Physics	2	2
1st Stage		Democracy and human rights	1	---
2nd Stage		Bath crimes	1	---
2nd Stage		Computer Science (1st + 2ed Semester)	---	2
2nd Stage		Arabic Language	2	---
2nd Stage		Pharmacognosy I	3	2
3rd stage		Pharmacognosy II	2	2
3rd stage		Pharmacognosy III	2	2

8. Expected learning outcomes of the program	
Knowledge	
1- Knowledge of plant preparations 2- Study of medicinal plants and methods of extracting them 3- The possibility of artificially propagating plants to increase the percentage of active substances	1- Theoretical lectures 2- Educational laboratories 3- Scientific reports 4- Desk research
Skills	
1- Acquiring skill in extraction methods 2- Acquire skill in isolating active ingredients 3- Acquire the skill in diagnosing it	1- Theoretical lectures 2- Educational laboratories 3- Scientific reports 4- Desk research
Ethics	
1- Modern methods of presenting lectures in slide format Use 2 - Video clips and explanatory diagrams 3- Visit the Botanical Garden and submit scientific reports 4- Assigning students to homework	Seminars - daily assignments - written exams Oral and written exams and writing reports on practical experiences

9. Teaching and Learning Strategies
Lectures Seminars Videos

10. Evaluation methods
Oral and written exams and writing reports on practical experiences

11. Faculty

Faculty Members

Academic Rank	Specialization		Special Requirements/Skills (if applicable)		Number of the teaching staff	
	General	Special			Staff	Lecturer
Professor	Physics	Medical physics			⊗	
Assist. Professor	Biology	Plant taxonomy			⊗	
Assist. Professor	Biology	Genetic Engineering			⊗	
Assist. Professor	Biology	Genetic Engineering			⊗	
Assist. Professor	Biology	Biotechnology			⊗	
Lecturer	Biology	Phytotherapy			⊗	
Lecturer	Physics	Medical physics			⊗	
Lecturer	Mathematics	Statistics			⊗	
Lecturer	Computer	Computer			⊗	
Lecturer	Computer	Computer			⊗	
Assist. Lecturer	Pharmacy	Pharmaceutical chemistry			⊗	
Assist. Lecturer	Pharmacy	Pharmacognosy			⊗	
Assist. Lecturer	Pharmacy	Pharmacognosy			⊗	
Assist. Lecturer	Pharmacy	Pharmacognosy			⊗	
Assist. Lecturer	Mathematics	Statistics			⊗	
Assist. Lecturer	Biology	Medicinal plants			⊗	
Assist. Lecturer	Biology	Medicinal plants			⊗	
Assist. Lecturer	Physics	Physics			⊗	
Assist. Lecturer	Arts	History			⊗	

Assist. Lecturer	**Arts**	**History**			⊗	

Professional Development
Mentoring new faculty members
Training courses and workshops.
Professional development of faculty members
Evaluation of professors' performance by students and teachers themselves by conducting mutual evaluation.

12. **Acceptance Criterion**
Academic grade and physical health

13. **The most important sources of information about the program**
Scientific books and international research

14. Program Development Plan

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

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
1st Stage		Mathematics and statistics	Basic			/	/	/			/		/	/	
		Computer I	Basic			/	/	/			/		/	/	
		English language	Basic						/	/			/		
		Medical Physics	Basic		/	/	/	/					/	/	
		Democracy & human rights	Basic				/		/	/		/	/	/	
		Computer II	Basic				/		/	/			/		
2nd Stage		Pharmacognosy I	Basic		/			/	/	/			/		/
		Computer III	Basic			/	/	/			/		/	/	
		Computer IV	Basic			/	/	/			/		/	/	
		Arabic language	Basic						/	/			/		
		Bath Criam	Basic				/		/	/		/	/	/	
3rd stage		Pharmacognosy II	Basic		/				/	/			/		/
		Pharmacognosy III	Basic		/				/	/			/		/

Course Description Form

1. Course Name: Mathematics and biostatistics

2. Course Code:

3. Semester / Year: The first / first stage

4. Description Preparation Date:**2024/2/4**

5. Available Attendance Forms: Attendance system

6. Number of Credit Hours (Total) / Number of Units (Total)

3 hours / 3 units

7. Course administrator's name (mention all, if more than one name)

Name: Dr. Rana Hasan Shamkhi , Name: Aseel Ali Jaaze
Email: **Rana413427@gmail.com,** Email: aseel.jaaze@uobasrah

8. Course Objectives

Course Objectives	• **Providing the student and enabling him with the basic concepts of integral calculus in order to be prepared to study and understand analysis courses…..** • **Providing students with important theoretical information, empowering them with the ability to deal with the concept of mathematics and statistical analysis, and emphasizing the knowledge and skill required to be acquired by students to efficiently perform their duties and responsibilities as College of Pharmacy students.**

9. Teaching and Learning Strategies

Strategy	Using lectures by speaking to students and using Power Point slides and the blackboard

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	3	Identify the forms of the function	**Function and Rang the function.**	Lectures	Exam + activity

2	3	**Learn limit and continuity and how to apply them**	**Limits and Continuity.**	Lectures	Exam + activity
3	3	**Learn the basics of differentiation**	**Differentiation rules**	Lectures	Exam + activity
4	3	**Trigonometric functions and finding the derivative**	**Trigonometric Funct derivative**	Lectures	Exam + activity
5	3	**Inverse trigonometric functions and how to find their derivative**	**Derivatives of Inverse trigonometric functi**	Lectures	Exam + activity
6	3	**Integration with basic information for integration**	**Rules for integral integrat formulas.**	Lectures	Exam + activity
7	3	**Indefinite integrals. And how to find it**	**indefinite integrals.**	Lectures	Exam + activity
8	3	**Properties of definite integrals and how to solve them**	**Properties of definite integra**	Lectures	Exam + activity
9	3	**Integration of the trigonometric function and how to find it**	**Integration of trigonome function**	Lectures	Exam + activity
10	3	**Integration of exponential and logarithmic functions and how to find them**	**Integration of Exponential Logarithmic function**	Lectures	Exam + activity
11	3	**Find the mean, median, and mode of the data**	**Measures of central tendenc**	Lectures	Exam + activity
12	3	**Finding the relationship between the dependent and independent variables**	**Correlation coefficients**	Lectures	Exam + activity
13	3	**Finding the linear equation between the dependent and independent variables**	**Regression**	Lectures	Exam + activity
14	3	**Find probability**	**probability**	Lectures	Exam + activity
15	3	**Study the laws of probability for any two events**	**Laws of probability for any events**	Lectures	Exam + activit
16	3	**Find the conditional probability**	**Conditional probability**	Lectures	Exam + activit

11. Course Evaluation

30 midterm exams and 70 final exams

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	**Calculus**
Main references (sources)	**An introduction to statistics by Dr. Khashi Al-R**
Recommended books and references (scientific journals, reports…)	**Introduction to statistics (Ronald .Walpole)**

Electronic References, Websites	