2nd Year- Course Description 2026-2027

1. Course Name:	
Organic Chemistry II	
2. Course Code:	
212 ChPOc2	
3. Semester / Year:	
First semester/ Second stage	
4. Description Preparation Date:	
9-2026	
5. Available Attendance Forms:	
on campus	
6. Number of Credit Hours (Total) / Number of Units (Total)	
3 hours/week (Theory) , 2hours/ week (Practical) (75 hours) , Total units=4	
7. Course Administrator's Name (mention all, if more than one name)	
Theory: Name: Prof. Ameen Waleed | Email: ameen.waleed@bcms.edu.iq Name: Assistant Lecturer Hasan Fadhil | Email: hasan.fadhil@bcms.edu.iq Practical: Name: Assistant Lecturer Israa Abd Al Rasol | Email: israaabdalrasol@bcms.edu.iq Name: Assistant Lecturer Hasan Fadhil | Email: hasan.fadhil@bcms.edu.iq	
8. Course Objectives	
Course Objectives	• This course builds upon foundational organic chemistry principles to explore the chemistry of more complex and biologically significant molecules. • The curriculum is centered on two major themes: the reactivity of oxygen- and nitrogen-containing functional groups (especially carbonyls) and an introduction to the vast and important field of heterocyclic chemistry.
9. Teaching and Learning Strategies	
Strategy	1) Giving scientific lectures 2) Conduct practical experiments 3) Preparing scientific research individually or collectively 4) Assigning students to homework 5) Assigning the student to prepare seminars and discussions 6) Providing the opportunity for the student to enhance self-education
10. Course Structure	

2nd Year- Course Description 2026-2027

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1-4	10	Understand carboxylic acids	Carboxylic acids: properties and reactions. Functional derivatives of carboxylic acids.	Lectures and practical laboratories	Daily, midterm and final exams, practical exam, reports
4-6	6	Describe amines I and II	Amines I and II.	Lectures and practical laboratories	Daily, midterm and final exams, practical exam, reports
6-9	10	Study aldehydes and ketones (include also aldol and Claisen condensation)	Aldehydes and ketones (include also aldol and Claisen condensation); Classification, reactions and properties.	Lectures and practical laboratories	Daily, midterm and final exams, practical exam, reports
9-10	3	Understand heterocyclic system	Heterocyclic system: Classes of heterocyclic systems; general structures; properties; Occurrence in nature and in medicinal products.	Lectures and practical laboratories	Daily, midterm and final exams, practical exam, reports
10-11	3	Describe five-membered ring heterocyclic compounds	Five-membered ring heterocyclic compounds: pyrrole; furan and thiophen.	Lectures and practical laboratories	Daily, midterm and final exams, practical exam, reports
11-12	2	Study source of pyrrole, furan and thiophen	Source of pyrrole, furan and thiophen.	Lectures and practical laboratories	Daily, midterm and final exams, practical exam, reports

12-13	4	Understand electrophilic substitution in pyrrole, furan and thiophen	Electrophilic substitution in pyrrole, furan and thiophen: Reactivity and orientation.	Lectures and practical laboratories	Daily, midterm and final exams, practical exam, reports
13-14	3	Describe six-membered ring heterocyclic compounds	Six-membered ring heterocyclic compounds: Structure & reactions of pyridine.	Lectures and practical laboratories	Daily, midterm and final exams, practical exam, reports
14-15	4	Study saturated five-membered heterocyclic compounds	Saturated five-membered heterocyclic compounds.	Lectures and practical laboratories	Daily, midterm and final exams, practical exam, reports

11. Course Evaluation

- 20 M Theoretical assessments; (paper-based mid-term exam + attendance + seminar)
- 20 M practical assessment (attendance + quiz + practice+ oral-based exam)
- 60 M paper-based theoretical final exam

_____ 100 M total

12. Learning and Teaching Resources

Required Textbooks (curricular books, if any)	Organic Chemistry: by John McMurry 10th Ed, 2023
Main References (Sources)	Organic Chemistry: Structure and Function (8th Edition) by Vollhardt and Schore.
Recommended Supporting Books and References (scientific journals, reports ...)	Essentials of Organic Chemistry_ For Students of Pharmacy, Medicinal Chemistry, Biological Chemistry; Paul M Dewick.
Electronic References, Websites	https://www.sciencedirect.com/book/9780128128381/organic- chemistry

2nd Year- Course Description 2026-2027

1. Course Name:					
Microbiology I (Theory and Practical)					
2. Course Code:					
213 AClMm1					
3. Semester / Year:					
First Semester /Second Year					
4. Description Preparation Date:					
9-2026					
5. Available Attendance Forms:					
On campus					
6. Number of Credit Hours (Total) / Number of Units (Total)					
3 hours/week (Theory) , 2hours/ week (Practical) (75 hours) , Total units=4					
7. Course Administrator's Name (mention all, if more than one name)					
Theory: Name: Lecturer Dr. Zainab Jumaa | Email: zainab.jumaa@bcms.edu.iq Practical: Name: Lecturer Dr. Zainab Jumaa | Email: zainab.jumaa@bcms.edu.iq Name: Biology Technician Faridh Fawzi | Email: faridh.fawzi@bcms.edu.iq					
8. Course Objectives					
Course Objectives	• Understanding bacteria in terms of their presence in the environment and their nutritional requirements for growth and reproduction • Methods of transmission of bacteria and the diseases they cause • Treatments and resistance to antibiotics and environmental factors				
9. Teaching and Learning Strategies					
Strategy	• Presentation and recitation • Interactive discussions • Brainstorming • Research and induction				
10. Course Structure					
	Hours	Required Learning Outcomes	Unit or Subject	Learning method	Evaluation method

1	1	Understand introduction to microbiology	**Introduction to microbiology**	Lectures, Discussions, and Reports	Exam and classroom activities
1	1	Describe bacterial classification and structure	**Bacterial classification and structure**	Lectures, Discussions, and Reports	=
1-2	2	Study bacterial pathogenicity	**Bacterial pathogenicity**	Lectures, Discussions, and Reports	=
2	2	Understand bacterial genetic	**Bacterial genetic**	Lectures, Discussions, and Reports	=
3	2	Describe bacterial growth physiology and biofilm	**Bacterial growth physiology and biofilm**	Lectures, Discussions, and Reports	=
3-4	2	Study normal Flora	**Normal Flora**	Lectures, Discussions, and Reports	=
4	1	Understand antimicrobial resistance	**Antimicrobial resistance**	Lectures, Discussions, and Reports	=
4-5	2	Describe gram positive	**Gram positive: Staphylococcus**	Lectures, Discussions, and Reports	=
5	2	Study gram positive	**Gram positive: Streptococcus**	Lectures, Discussions, and Reports	=
6	1	Understand gram positive	**Gram positive: Bacillus**	Lectures, Discussions, and Reports	=
6-7	3	Describe gram positive	**Gram positive: Clostridium**	Lectures, Discussions, and Reports	=
7	1	Study gram positive	**Gram positive: Corynebacterium**	Lectures, Discussions, and Reports	=
7	1	Understand gram negative	**Gram negative : Neisseria**	Lectures, Discussions, and Reports	=

8	2	Describe gram negative	**Gram negative : Enteroba. E. coli**	Lectures, Discussions, and Reports	=
8-9	2	Study gram negative	**Gram negative : Salmonella and Shigella**	Lectures, Discussions, and Reports	=
9	1	Understand gram negative	**Gram negative : Klebsiella and proteus**	Lectures, Discussions, and Reports	=
9-10	2	Describe non-enteric Pseudomonas and vibrio	**Non-enteric Pseudomonas and vibrio**	Lectures, Discussions, and Reports	=
10	2	Study brucella, Bordetella and Hemophilus	**Brucella, Bordetella and Hemophilus**	Lectures, Discussions, and Reports	=
11	2	Understand H. pylori and Campylobacter	**H. pylori and Campylobacter**	Lectures, Discussions, and Reports	=
11-12	3	Describe treponema, Yersinia and Actinomycetes	**Treponema, Yersinia and Actinomycetes**	Lectures, Discussions, and Reports	=
12-13	2	Study mycobacteria	**Mycobacteria**	Lectures, Discussions, and Reports	=
13	2	Understand antimicrobial stewardship	**Antimicrobial stewardship**	Lectures, Discussions, and Reports	=
14	2	Describe recombinant biotechnology	**Recombinant biotechnology**	Lectures, Discussions, and Reports	=
14	1	Study phage and toxins	**Phage and toxins**	Lectures, Discussions, and Reports	=
15	3	Understand probiotics, prebiotics and postbiotics	**Probiotics, prebiotics and postbiotics**	Lectures, Discussions, and Reports	=
11. Course Evaluation					

• 20 M Theoretical assessments; (paper-based mid-term exam + attendance + seminar) • 20 M practical assessment (attendance + quiz + practice+ oral-based exam) • 60 M paper-based theoretical final exam _____ 100 M total	
12. Learning and Teaching Resources	
Required Textbooks (curricular books, if any)	Lippincott's Illustrated Reviews: Microbiology, 2nd ed.
Main References (Sources)	A color Atlas of microbiology by Ronald John Olds
Recommended Supporting Books and References (scientific journals, reports …)	Jawetz, Melnick, & Adelberg's. Medical Microbiology 26th ed.
Electronic References, Websites	

2nd Year- Course Description 2026-2027

1. Course Name:
Physical Pharmacy I (Theory and Practical)
2. Course Code:
214 PhPp1
3. Semester / Year:
First Semester / Second year
4. Description Preparation Date:
9-2026
5. Available Attendance Forms:
On campus
6. Number of Credit Hours (Total) / Number of Units (Total)
3 hours/week (Theory), 2 hours/week (Practical) (75 hours), Total units = 4
7. Course Administrator's Name (mention all, if more than one name)
Theory: Name: Assistant Lecturer Zainab Abdulmuhsin Radhi | Email: zainabradhi@bcms.edu.iq Practical: Name: Assistant Lecturer Zainab Abdulmuhsin Radhi | Email: zainabradhi@bcms.edu.iq Name: Assistant Lecturer Hussein Ali | Email: husseinali@bcms.edu.iq
8. Course Objectives

Course Objectives	Understand the states of matter, molecular interactions, and phase equilibria, including the phase rule and thermal analysis techniques. Analyze the properties of non-electrolyte solutions, including colligative behavior and methods for molecular weight determination. Study the behavior of electrolyte solutions, applying theories of dissociation, ionic strength, and colligative property expressions. Explore solubility and distribution phenomena, focusing on solute-solvent interactions and partitioning between immiscible phases. Apply principles of ionic equilibria, acid-base theories, pH calculations, and the effect of ionic strength on solution behavior. Understand the formulation and function of buffered and isotonic solutions in maintaining pH and physiological compatibility.

9. Teaching and Learning Strategies

2nd Year- Course Description 2026-2027

Strategy	1-Lectures and Presentation 2-Discussions 3- Laboratory experiments 4- Inverted classrooms

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or Subject Name	Learning Method	Evaluation Method
1-3	9	Understand states of matterBinding forces between moleculesStates of matterThe gaseous stateThe liquid stateSolids...	States of matter (Chapter 2)Binding forces between moleculesStates of matterThe gaseous stateThe liquid stateSolids and crystalline stateThe liquid crystalline stateThe supercritical fluid stateThermal analysisPhase equilibria and phase ruleSolid dispersions	Lectures and practical laboratories	Daily, midterm and final exams, practical exam, reports
4-5	6	Describe nonelectrolytesPhysical properties of substancesTypes of solutionsConcentration expressionsIdeal and real...	Nonelectrolytes (Chapter 5)Physical properties of substancesTypes of solutionsConcentration expressionsIdeal and real solutionsColligative propertiesMolecular weight determination.	Lectures and practical laboratories	Daily, midterm and final exams, practical exam, reports
6-7	6	Study electrolyte solutionsProperties	Electrolyte solutions (Chapter	Lectures and practical	Daily, midterm and final exams,

		of solutions of electrolytesTheory of dissociationTheory of strong…	6)Properties of solutions of electrolytesTheory of dissociationTheory of strong electrolytesIonic strengthThe Debye-Hückel theoryCoefficients for expressing colligative properties	laboratories	practical exam, reports
8-11	12	Understand solubility and distribution phenomenaIntroductionSolvent-solute interactionsSolubility of liquids in…	Solubility and distribution phenomena (Chapter 9)IntroductionSolvent-solute interactionsSolubility of liquids in liquidsSolubility of solids in liquidsDetermining thermodynamic and kinetic solubilityPoor aqueous solubilityMeasuring solubilityDistribution of solutes between immiscible solvents	Lectures and practical laboratories	Daily, midterm and final exams, practical exam, reports
12-13	6	Describe ionic equilibriaIntroductionBrønsted–Lowry theoryIonization and	Ionic equilibria (Chapter 7)IntroductionBrønsted–Lowry theoryIonization	Lectures and practical laboratories	Daily, midterm and final exams, practical exam, reports

		dissociationClassification of solvents…	and dissociationClassification of solvents Lewis electronic theoryAcid-base equilibriaCalculation of pH and acidity constants		
14-15	6	Study buffered and isotonic solutionsThe buffer equationBuffer capacityBuffers in pharmaceutical and biological…	Buffered and isotonic solutions (Chapter 8)The buffer equationBuffer capacityBuffers in pharmaceutical and biological systems	Lectures and practical laboratories	Daily, midterm and final exams, practical exam, reports

11. Course Evaluation

- 20 M Theoretical assessments; (paper-based mid-term exam + attendance + seminar)
- 20 M practical assessment (attendance + quiz + practice+ oral-based exam)
- 60 M paper-based theoretical final exam

_____ 100 M total

12. Learning and Teaching Resources

Required Textbooks (curricular books, if any)	Martin's Physical Pharmacy and Pharmaceutical Sciences; 7th edition; 2017.
Main References (Sources)	Aulton's Pharmaceutics; The Design and Manufacture of Medicines; 6th edition, 2022.
Recommended Supporting Books and References (scientific journals, reports …)	
Electronic References, Websites	

2nd Year- Course Description 2026-2027

1. Course Name:
Physiology II
2. Course Code:
215 AClPhy2
3. Semester / Year:
First Semester / Second Year
4. Description Preparation Date:
9-2026
5. Available Attendance Forms:
On campus
6. Number of Credit Hours (Total) / Number of Units (Total)
2 hours/week (Theory), 2 hours/week (Practical) (60 hours) / Three units
7. Course Administrator's Name (mention all, if more than one name)
Theory: Name: Lecturer Dr. Mohannad Mahdi Damad Al-Qaisi | Email: mohened@bcms.edu.iq Practical: Name: Assistant Lecturer Ibrahim Qais Ismail | Email: ibraheem.kais0@bcms.edu.iq Name: Assistant Lecturer Yousef Alwan | Email: yousefalwan@bcms.edu.iq
8. Course Objectives

Course Objectives	To learn how muscles work. To learn the functions of cardiovascular system To learn the immune system functions To learn the energy production and regulation in the body To learn how human reproduction

9. Teaching and Learning Strategies

Strategy	Interactive lectures supported by presentations and animations Laboratory sessions demonstrating physiological measurements Case-based discussion linking physiology to drug action Daily and weekly quizzes

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or Subject Name	Learning Method	Evaluation Method
1-3	6	Understand muscle	Muscle	Lectures and practical laboratories	Daily, midterm and final exams, practical exam, reports

4-6	6	Describe cardiovascular	Cardiovascular	Lectures and practical laboratories	Daily, midterm and final exams, practical exam, reports
7-9	6	Study the Immune system	The Immune system	Lectures and practical laboratories	Daily, midterm and final exams, practical exam, reports
10-11	4	Understand regulation of organic metabolism and energy balance	Regulation of organic metabolism and energy balance	Lectures and practical laboratories	Daily, midterm and final exams, practical exam, reports
12-15	8	Describe reproduction	Reproduction	Lectures and practical laboratories	Daily, midterm and final exams, practical exam, reports

11. Course Evaluation
Midterm exam 20 marks Quizzes and classroom activities 5 marks Practical part 25 marks Final semester exam 50 marks Total 100 marks

12. Learning and Teaching Resources	
Required Textbooks (curricular books, if any)	Vander's Human physiology: the mechanisms of body function. Eric P. Widmaier, Hershel Raff, Kevin T. Strang, last edition
Main References (Sources)	Guyton and Hall Textbook of Medical Physiology, latest edition
Recommended Supporting Books and References (scientific journals, reports ...)	Ganong's Review of Medical Physiology, latest edition
Electronic References, Websites	www.physiology.org | Khan Academy — Human Physiology

2nd Year- Course Description 2026-2027

1. Course Name:
Computer Sciences
2. Course Code:
216 PhCs
3. Semester / Year:
First semester /Second year
4. Description Preparation Date:
9-2026
5. Available Attendance Forms:
In-person attendance
6. Number of Credit Hours (Total) / Number of Units (Total)
1 hour theory-(Practical) 2hours/ week (45 hours), Total units=2
7. Course Administrator's Name (mention all, if more than one name)
Theory: Name: Assistant Lecturer Israa Waleed | Email: israa.waleed@bcms.edu.iq Practical: Name: Assistant Lecturer Israa Waleed | Email: israa.waleed@bcms.edu.iq Name: Computer Engineering Technician Safa Abdul Hussein | Email: safahq@bcms.edu.iq
8. Course Objectives

Course Objectives	1- Provide a thorough overview of the fundamental concepts of computer applications. 2- The course covers the use of Microsoft Excel and Google applications in detail.
9. Teaching and Learning Strategies	
Strategy	1-Lectures and Presentation 2-Discussions 3- Laboratory application 4- Inverted classrooms

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or Subject Name	Learning Method	Evaluation Method
1	1	Understand introduction to Excel	Introduction to Excel	Lectures and practical laboratories	Daily, midterm and final exams, practical exam, reports

2	1	Describe insert tab	Insert tab	Lectures and practical laboratories	Daily, midterm and final exams, practical exam, reports
3-4	2	Study insert tab	Insert tab	Lectures and practical laboratories	Daily, midterm and final exams, practical exam, reports
5	1	Understand page Layout and Basic Functions	Page Layout and Basic Functions	Lectures and practical laboratories	Daily, midterm and final exams, practical exam, reports
6	1	Describe logical Functions	Logical Functions	Lectures and practical laboratories	Daily, midterm and final exams, practical exam, reports
7-8	2	Study logical Functions	Logical Functions	Lectures and practical laboratories	Daily, midterm and final exams, practical exam, reports
9-10	2	Understand data	Data	Lectures and practical laboratories	Daily, midterm and final exams, practical exam, reports
11-12	2	Describe review and view	Review and view	Lectures and practical laboratories	Daily, midterm and final exams, practical exam, reports
13-15	3	Study developer	Developer	Lectures and practical laboratories	Daily, midterm and final exams, practical exam, reports

11. Course Evaluation

- 20 M Theoretical assessments; (paper-based mid-term exam + attendance + seminar)
- 20 M practical assessment (attendance + quiz + practice+ oral-based exam)
- 60 M paper-based theoretical final exam

_____ 100 M total

12. Learning and Teaching Resources	
Required Textbooks (curricular books, if any)	**1-** Microsoft office Professional, BY Linda Foulkes, Senior Editor: Afshaan Khan .
Main References (Sources)	Microsoft office Professional, BY Joyce Cox, Jo an Lambert & Curtis Frye
Recommended Supporting Books and References (scientific journals, reports …)	Microsoft office Professional 2010, BY Joyce Cox, Jo an Lambert & Curtis Frge
Electronic References, Websites	

2nd Year- Course Description 2026-2027

1. Course Name:
Baath Regime Crimes in Iraq
2. Course Code:
217 PhBrc
3. Semester / Year:
First Semester/Second Year
4. Description Preparation Date:
9-2026
5. Available Attendance Forms:
On campus
6. Number of Credit Hours (Total) / Number of Units (Total)
Two hours (30 hours) / two units
7. Course Administrator's Name (mention all, if more than one name)
Name: Assistant Lecturer Mustafa Qasim Mohamed/ Email: mustafaqasim93717@gmail.com
8. Course Objectives

Course Objectives	To give this generation an intellectual opening that reveals to them something of the crimes of this regime — crimes that neither religious law nor civil law permits to remain locked away from free Iraqis. To set out the evidence held by the investigation and truth-finding system that discloses the crimes of the Baath regime. To document the crimes of the Baath regime under the Law of the Supreme Iraqi Criminal Tribunal of 2005.
9. Teaching and Learning Strategies	
Strategy	• Presentation and presentation • Interactive Discussions • Brainstorming • Research and extrapolation

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or Subject Name	Learning Method	Evaluation Method
1-2	4	Understand definition of crime, linguistically and in legal terminology	Definition of crime, linguistically and in legal terminology	Lectures and seminars	Daily, midterm and final exams, reports and seminars

3-4	4	Describe human rights violations	Human rights violations	Lectures and seminars	Daily, midterm and final exams, reports and seminars
5-6	4	Study psychological crimes and their effects	Psychological crimes and their effects	Lectures and seminars	Daily, midterm and final exams, reports and seminars
7-8	4	Understand violations of Iraqi law	Violations of Iraqi law; human rights violations and the crimes of the Baath party authority	Lectures and seminars	Daily, midterm and final exams, reports and seminars
9-10	4	Describe decisions on the political and military violations of the Baath regime	Decisions on the political and military violations of the Baath regime; the fabricated charge of plotting a coup levelled at anyone opposing the regime, used to purge its opponents in the army	Lectures and seminars	Daily, midterm and final exams, reports and seminars
11-12	4	Study environmental crimes	Environmental crimes; war and radioactive contamination and mine explosions	Lectures and seminars	Daily, midterm and final exams, reports and seminars
13-15	6	Understand contamination with radioactive materials	Contamination with radioactive materials; the use of internationally prohibited weapons	Lectures and seminars	Daily, midterm and final exams, reports and seminars
11. Course Evaluation					

Midterm exam 30 marks Final semester exam 70 Marks	
12. Learning and Teaching Resources	
Required Textbooks (curricular books, if any)	United Nations reports condemning the Baath regime — human rights violations, 1991–2003
Main References (Sources)	Dr. Raed Abis and Dr. Abbas Atiyah — Iraqi Centre for Documenting Crimes of Extremism, first edition
Recommended Supporting Books and References (scientific journals, reports …)	Archive of the Iraqi Centre for Documenting Crimes of Extremism at the Holy Abbasid Shrine
Electronic References, Websites	Archive of the Political Prisoners Foundation

2nd Year- Course Description 2026-2027

1. Course Name:	
Arabic Language II	
2. Course Code:	
218 PhArl2	
3. Semester / Year:	
First Semester/Second Year	
4. Description Preparation Date:	
9-2026	
5. Available Attendance Forms:	
In campus	
6. Number of Credit Hours (Total) / Number of Units (Total)	
Two Hours (30 Hours) / Two Units	
7. Course Administrator's Name (mention all, if more than one name)	
Name: Assistant Lecturer Mustafa Qasim Mohamed / Email: mustafaqasim93717@gmail.com	
8. Course Objectives	
Course Objectives	• Study selected verses of the Holy Qur'an and Prophetic hadiths and derive their linguistic and moral meanings. • Analyse selected texts of Arabic poetry and prose from the classical and modern periods. • Master the rules of Arabic grammar: the imperfect verb in the subjunctive and jussive, the accusatives, the genitives, numerals and appositives. • Master the morphology of nouns in gender, augmentation, and number. • Apply the rules of Arabic spelling: ta' marbuta and maftuha, the extended and shortened alif, and the letters dad and za'. • Use Arabic dictionaries and extract entries according to the methods of the main lexicographical schools. • Recognise the science of badi' and its effect on the eloquence of speech. • Identify and correct common language errors in speaking and writing.

2nd Year- Course Description 2026-2027

9. Teaching and Learning Strategies	
Strategy	• Presentation and Presentation • Interactive Discussions • Brainstorming • Research and Induction

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or Subject Name	Learning Method	Evaluation Method
1	2	Understand the Holy Qur'an and the Prophetic Hadith	The Holy Qur'an and the Prophetic Hadith: Surat al-Isra', verses 23-29; the hadith "God loves that when one of you does a work he perfects it"; verses from al-Sharif al-Radi's elegy for his mother	Lectures and seminars	Daily, midterm and final exams, reports and seminars
2-3	4	Describe arabic Literature	Arabic Literature: the Daliyya of Abu al-'Ala' al-Ma'arri; selected verses of al-Jawahiri and al-Sayyab (Rain Song / Stranger on the Gulf); the arts of prose	Lectures and seminars	Daily, midterm and final exams, reports and seminars
4-5	4	Study arabic Grammar	Arabic Grammar: the imperfect verb in the subjunctive and the jussive; the genitives; the accusatives	Lectures and seminars	Daily, midterm and final exams, reports and seminars

6	2	Understand language Skills	Language Skills: the rules of writing ta' (maftuha and marbuta); the rules of writing alif (mamduda and maqsura); writing dad and za'	Lectures and seminars	Daily, midterm and final exams, reports and seminars
7	2	Describe arabic Dictionaries	Arabic Dictionaries: the stages of collecting the language; dictionaries of vocabulary and semantics	Lectures and seminars	Daily, midterm and final exams, reports and seminars
8	1	Study common language errors and their correction (first semester)	Common language errors and their correction (first semester)	Lectures and seminars	Daily, midterm and final exams, reports and seminars
8-9	2	Understand the Holy Qur'an and the Prophetic Hadith	The Holy Qur'an and the Prophetic Hadith: Surat Yusuf, verses 1-7; the hadith "Do not envy one another … and be servants of God as brothers"	Lectures and seminars	Daily, midterm and final exams, reports and seminars
9-10	3	Describe arabic Literature	Arabic Literature: verses from al-Mutanabbi's Mimiyya and Ibn al-Farid's Jimiyya; verses of Mustafa Jamal al-Din and Muhammad Mahdi al-Jawahiri	Lectures and seminars	Daily, midterm and final exams, reports and seminars

11-12	3	Study morphology	Morphology: the inflection of nouns in gender, in abstraction and augmentation, and in the singular, dual and plural	Lectures and seminars	Daily, midterm and final exams, reports and seminars
12-13	2	Understand arabic Grammar	Arabic Grammar: numerals and their rules; the appositives	Lectures and seminars	Daily, midterm and final exams, reports and seminars
13-14	2	Describe arabic Dictionaries	Arabic Dictionaries: the method of the schools of Maqayis al-Lugha and al-Sihah, with practice in extracting entries	Lectures and seminars	Daily, midterm and final exams, reports and seminars
14-15	2	Study arabic Rhetoric	Arabic Rhetoric: the science of badi‘ and its effect on eloquence — semantic embellishments (tawriya, tibaq, muqabala, husn al-ta‘lil, ta’kid al-madh bima yushbih al-dhamm) and verbal embellishments (jinas, saj‘, iqtibas, tadmin)	Lectures and seminars	Daily, midterm and final exams, reports and seminars

15	1	Understand common language errors and their correction (second semester)	Common language errors and their correction (second semester)	Lectures and seminars	Daily, midterm and final exams, reports and seminars

11. Course Evaluation	
Mid-term exam 20 marks Dialogue and Discussion Panels 10 Degrees End of Semester Exam 70 Marks	
12. Learning and Teaching Resources	
Required Textbooks (curricular books, if any)	Al-Minhaj al-Muwahhad al-Muqtarah li-Maddat al-Lugha al-‘Arabiyya li-Ghayr al-Ikhtisas fi al-Jami‘at al-‘Iraqiyya wa al-Ahliyya (The Unified Proposed Arabic Language Curriculum for Non-Specialists in Iraqi Public and Private Universities) — Ministry of Higher Education and Scientific Research
Main References (Sources)	Al-‘Arabiyya al-Jami‘iyya li-Ghayr al-Mukhtassin — Dr. Abduh al-Rajihi
Recommended Supporting Books and References (scientific journals, reports …)	Sharh Ibn ‘Aqil ‘ala Alfiyyat Ibn Malik; Arabic dictionaries: al-‘Ayn, al-Asas, Maqayis al-Lugha, al-Sihah, al-Mufradat by al-Raghib al-Isfahani
References, Websites	

2nd Year- Course Description 2026-2027

1. Course Name:	
Microbiology II	
2. Course Code:	
219 AClMm2	
3. Semester / Year:	
Second semester /Second year	
4. Description Preparation Date:	
9-2026	
5. Available Attendance Forms:	
On campus	
6. Number of Credit Hours (Total) / Number of Units (Total)	
2 hours/week (Theory) , 2 hours/week (Practical) (60 hours) , Total units = 3	
7. Course Administrator's Name (mention all, if more than one name)	
Theory: Name: Lecturer Dr. Zainab Jumaa | Email: zainab.jumaa@bcms.edu.iq Practical: Name: Lecturer Dr. Zainab Jumaa | Email: zainab.jumaa@bcms.edu.iq Name: Biology Technician Faridh Fawzi | Email: faridh.fawzi@bcms.edu.iq	
8. Course Objectives	
Course Objectives	• Providing students with information about parasitic and viral diseases affecting human health, their most important causes and vectors, and methods detecting , treating and controlling them. • Providing students with information about fungi causing systemic diseases and methods of detecting treating and controlling them.
9. Teaching and Learning Strategies	
Strategy	• Presentation and recitation • Interactive discussions • Brainstorming • Research and induction
10. Course Structure	

2nd Year- Course Description 2026-2027

Week	Hours	Required Learning Outcomes	Unit or Subject Name	Learning Method	Evaluation Method
1	1	Understand introduction to human parasite & taxonomy	Introduction to human parasite & taxonomy	Lectures and practical laboratories	Daily, midterm and final exams, practical exam, reports
1	1	Describe protozoa/Sarcodina	Protozoa/Sarcodina : intestinal (Entamoeba histolytica)	Lectures and practical laboratories	Daily, midterm and final exams, practical exam, reports
2	1	Study commensally intestinal amoeba	Commensally intestinal amoeba: (Entamoeba coli)	Lectures and practical laboratories	Daily, midterm and final exams, practical exam, reports
2	1	Understand protozoa/Mastigophora	Protozoa/ Mastigophora : Intestinal flagellates: (Giardia lamblia)	Lectures and practical laboratories	Daily, midterm and final exams, practical exam, reports
3	1	Describe genital flagellates	Genital flagellates: (Trichomonas vaginalis)	Lectures and practical laboratories	Daily, midterm and final exams, practical exam, reports
3	1	Study blood and tissue flagellates	Blood and tissue flagellates: (Leishmania spp. & Trypanosoma spp.)	Lectures and practical laboratories	Daily, midterm and final exams, practical exam, reports
4	1	Understand protozoa/ Sporozoa (Apicomplexa)	Protozoa/ Sporozoa (Apicomplexa): Blood Sporozoa: (Plasmodium Spp.)	Lectures and practical laboratories	Daily, midterm and final exams, practical exam, reports
4	1	Describe tissue Sporozoa	Tissue Sporozoa: (Toxoplasma gondii)	Lectures and practical laboratories	Daily, midterm and final exams, practical exam, reports
5	1	Study protozoa/ Ciliophora	Protozoa/ Ciliophora: (Balantidium coli)	Lectures and practical laboratories	Daily, midterm and final exams, practical exam, reports

5	1	Understand metazoa	Metazoa: Platyhelminthes (flatworms): Cestoda (tapeworms) : (Taenia spp.)	Lectures and practical laboratories	Daily, midterm and final exams, practical exam, reports
6	1	Describe (Hymenolepis spp.)	(Hymenolepis spp.)	Lectures and practical laboratories	Daily, midterm and final exams, practical exam, reports
6	1	Study (Echinococcus spp.)	(Echinococcus spp.)	Lectures and practical laboratories	Daily, midterm and final exams, practical exam, reports
7	1	Understand trematoda (flukes)	Trematoda (flukes): Blood flukes (Schistosoma spp.)	Lectures and practical laboratories	Daily, midterm and final exams, practical exam, reports
7	1	Describe hepatic flukes	Hepatic flukes: (Fasciola hepatica)	Lectures and practical laboratories	Daily, midterm and final exams, practical exam, reports
8	1	Study metazoa	Metazoa: Nemathelminthes (roundworms):Nematoda: (Ascaris lumbricoides, Trichuris trichuria)	Lectures and practical laboratories	Daily, midterm and final exams, practical exam, reports
8	1	Understand (Enterobius vermicularis)	(Enterobius vermicularis)	Lectures and practical laboratories	Daily, midterm and final exams, practical exam, reports
9	1	Describe (Ancylostoma duodenale)	(Ancylostoma duodenale)	Lectures and practical laboratories	Daily, midterm and final exams, practical exam, reports
9	1	Study introduction to Virology & General characterstics of virus	Introduction to Virology & General characterstics of virus	Lectures and practical laboratories	Daily, midterm and final exams, practical exam, reports

10	1	Understand viral replication	Viral replication	Lectures and practical laboratories	Daily, midterm and final exams, practical exam, reports
10	1	Describe propagation f viruses & one step growth curve	Propagation f viruses & one step growth curve	Lectures and practical laboratories	Daily, midterm and final exams, practical exam, reports
11	1	Study antiviral drugs	Antiviral drugs	Lectures and practical laboratories	Daily, midterm and final exams, practical exam, reports
11	1	Understand genetic interaction & Classifications of viruses	Genetic interaction & Classifications of viruses	Lectures and practical laboratories	Daily, midterm and final exams, practical exam, reports
12	1	Describe DNA viruses	DNA viruses	Lectures and practical laboratories	Daily, midterm and final exams, practical exam, reports
12	1	Study RNA viruses	RNA viruses	Lectures and practical laboratories	Daily, midterm and final exams, practical exam, reports
13	2	Understand classify fungi causing human infections. Opportunistic Mycosis – Candidiasis, Aspergillosis	Classify fungi causing human infections. Opportunistic Mycosis – Candidiasis, Aspergillosis	Lectures and practical laboratories	Daily, midterm and final exams, practical exam, reports
14	2	Describe infections of keratinized tissues e.g. Skin, hair & nails.– Pityriasis Vesicolor, white piedra, black…	Infections of keratinized tissues e.g. Skin, hair & nails.– Pityriasis Vesicolor, white piedra, black piedra, tinea nigra, Malassezia species, dermatophytes	Lectures and practical laboratories	Daily, midterm and final exams, practical exam, reports

15	2	Study fungi causing systemic diseases. - Histoplasmosis, Blastomycosis, Coccidioidomycosis	Fungi causing systemic diseases. - Histoplasmosis, Blastomycosis, Coccidioidomycosis	Lectures and practical laboratories	Daily, midterm and final exams, practical exam, reports

11. Course Evaluation
• 20 M Theoretical assessments; (paper-based mid-term exam + attendance + seminar) • 20 M practical assessment (attendance + quiz + practice+ oral-based exam) • 60 M paper-based theoretical final exam _____ 100 M total

12. Learning and Teaching Resources	
Required Textbooks (curricular books, if any)	Medical Microbiology 24th ed. 2007 by E. Jawetz
Main References (Sources)	Medical parasitology, 5th ed. By Dr. D.R. Arora & Dr. Brij Bala Arora. 2018
Recommended Supporting Books and References (scientific journals, reports …)	Lab manual for practical virology and parasitology, - Atlas of Helminthes and Protozoa
Electronic References, Websites	

2nd Year- Course Description 2026-2027

1. Course Name:
Physical Pharmacy II (Theory and Practical)
2. Course Code:
220 PhPp2
3. Semester / Year:
Second Semester/ 2nd year.
4. Description Preparation Date:
9-2026
5. Available Attendance Forms:
On campus
6. Number of Credit Hours (Total) / Number of Units (Total)
3 hours/week (Theory) , 2hours/ week (Practical) (75 hours) , Total units=4
7. Course Administrator's Name (mention all, if more than one name)
Theory: Name: Assistant Lecturer Zainab Abdulmuhsin Radhi | Email: zainabradhi@bcms.edu.iq Practical: Name: Assistant Lecturer Zainab Abdulmuhsin Radhi | Email: zainabradhi@bcms.edu.iq Name: Assistant Lecturer Hussein Ali | Email: husseinali@bcms.edu.iq
8. Course Objectives

Course Objectives	**1)** Understand complexation phenomena, classification of complexes, and methods used for their analysis. **2)** Explore the principles of drug diffusion, including Fick's laws, diffusion through membranes, and factors affecting permeability. **3)** Analyze chemical kinetics of drug degradation and perform stability studies using reaction rate laws and accelerated testing. **4)** Study interfacial phenomena, surface tension, spreading, and the role of surfactants in wetting and formulation stability. **5)** Examine the rheological properties of pharmaceutical systems, including thixotropy and methods of flow characterization. **6)** Learn about colloidal systems, micromeritics, and polymer science with focus on particle behavior, formulation impact,

	and pharmaceutical applications.
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 Outcomes	Unit or Subject Name	Learning Method	Evaluation Method
1-2	4	Understand complexationClassification of complexesMetal complexesOrganic molecular complexesInclusion...	Complexation (Chapter 10)Classification of complexesMetal complexesOrganic molecular complexesInclusion compoundsMethods of analysis	Lectures and practical laboratories	Daily, midterm and final exams, practical exam, reports
2-4	6	Describe diffusionIntroductionSteady state diffusionFick's first law of diffusionFick's second lawDiffusion through...	Diffusion (Chapter 11)IntroductionSteady state diffusionFick's first law of diffusionFick's second lawDiffusion through membranesPermeabilityDiffusion driving forcesLag timeApparatus and methods for assessing drug diffusion	Lectures and practical laboratories	Daily, midterm and final exams, practical exam, reports
4-6	7	Study chemical kinetics and stabilityIntroductionRates, orders and molecularity of	Chemical kinetics and stability (Chapter 14)IntroductionRates, orders and	Lectures and practical laboratories	Daily, midterm and final exams, practical exam, reports

		reactionsTemperature effects…	molecularity of reactionsTemperature effects Other factors effects Stability of pharmaceuticalsAccelerated stability and stress testing		
6-8	6	Understand interfacial phenomenaClassification of interfacesLiquid interfacesSurface and interfacial tensionsSurface…	Interfacial phenomena (Chapter 15)Classification of interfacesLiquid interfacesSurface and interfacial tensionsSurface free energyMeasurement of interfacial tensionSpreading coefficientAdsorption at liquid interfacesSurface active agentsSystems of Hydrophile–Lipophile ClassificationAdsorption at solid interfacesThe solid gas interfaceThe solid liquid interfaceWetting and wetting agentsApplications of surface-active agentsFoam and antifoaming agentsElectric properties of interfaces	Lectures and practical laboratories	Daily, midterm and final exams, practical exam, reports
8-10	6	Describe	Rheology (Chapter	Lectures and	Daily, midterm

		rheologyNewtonian systemsNon-Newtonian systemsThixotropy Determination of rheological…	16)Newtonian systemsNon-Newtonian systemsThixotropy Determination of rheological propertiesViscoelasticityPharmaceutical areas in which rheology is Significant	practical laboratories	and final exams, practical exam, reports
10-12	6	Study colloidal dispersionsIntroduction to disperse systemsTypes of colloidal systemsOptical properties of…	Colloidal dispersions (Chapter 17)Introduction to disperse systemsTypes of colloidal systemsOptical properties of colloidsKinetic properties of colloidsElectrical properties of colloidsSolubilization using colloidsPharmaceutical applications of colloids	Lectures and practical laboratories	Daily, midterm and final exams, practical exam, reports
12-14	5	Understand micrometricsParticle size and size distributionMethods of determining particle sizeParticle shape and…	Micrometrics (Chapter 19)Particle size and size distributionMethods of determining particle sizeParticle shape and surface areaMethods for determining surface areaDerived	Lectures and practical laboratories	Daily, midterm and final exams, practical exam, reports

			properties of powders (porosity, packing arrangements, densities of particles, bulkiness and flow properties)		
14-15	5	Describe pharmaceutical polymers Introduction (history, general concepts, synthesis)Copolymers and polymer…	Pharmaceutical polymers (Chapter 21) Introduction (history, general concepts, synthesis)Copolymers and polymer blendsThermoplastic and thermoset polymersPolymer properties (crystalline and amorphous polymers, thermal transitions, glass transition temperature, plasticized polymers, molecular weight, mechanical properties, Polymers for pharmaceutical applicationsPolymers in drug delivery	Lectures and practical laboratories	Daily, midterm and final exams, practical exam, reports

11. Course Evaluation

- 20 M Theoretical assessments; (paper-based mid-term exam + attendance + seminar)
- 20 M practical assessment (attendance + quiz + practice+ oral-based exam)
- 60 M paper-based theoretical final exam

_____ 100 M total

12. Learning and Teaching Resources	
Required Textbooks (curricular books, if any)	Martin's Physical Pharmacy and Pharmaceutical Sciences; 7th edition; 2017.
Main References (Sources)	Aulton's Pharmaceutics; The Design and Manufacture of Medicines; 6th edition, 2022.
Recommended Supporting Books and References (scientific journals, reports …)	
Electronic References, Websites	

2nd Year- Course Description 2026-2027

1. Course Name:	
Nutrition	
2. Course Code:	
221 AClNu	
3. Semester / Year:	
Second Semester / Second Year	
4. Description Preparation Date:	
9-2026	
5. Available Attendance Forms:	
On campus	
6. Number of Credit Hours (Total) / Number of Units (Total)	
Two hours/week (Theory) (30 hours) / Two units	
7. Course Administrator's Name (mention all, if more than one name)	
Name: ..... / Email:	
8. Course Objectives	
Course Objectives	Understanding how nutrition impacts health and disease, Applying nutrition principles to drug therapy and patient care, critically evaluating nutritional information and products, Counseling patients on diet and supplements, and collaborating with other health professionals on nutrition-related issues. To equip pharmacists to act as accessible, knowledgeable sources of nutrition advice for the public and to integrate this knowledge into their practice to prevent and manage chronic diseases.
9. Teaching and Learning Strategies	
Strategy	Interactive lectures supported by presentations Case-based discussion of clinical nutrition scenarios Small-group work on diet planning and nutritional assessment Assigned reading and short student seminars Daily and weekly quizzes
10. Course Structure	

2nd Year- Course Description 2026-2027

Week	Hours	Required Learning Outcomes	Unit or Subject Name	Learning Method	Evaluation Method
1	2	Understand introduction	Introduction: Fundamentals of NutritionImportance of nutrition in healthcare, The pharmacist's role in nutritional counseling)	Lectures and seminars	Daily, midterm and final exams, reports and seminars
2-3	4	Describe nutrition Across the Life Cycle-1. Infancy – childhood-adolescence-adulthood -2.Nutritional Aspects of…	Nutrition Across the Life Cycle-1. Infancy – childhood-adolescence-adulthood -2.Nutritional Aspects of Pregnancy and Lactation	Lectures and seminars	Daily, midterm and final exams, reports and seminars
4-5	4	Study nutrition and Aging , Osteoporosis	Nutrition and Aging , Osteoporosis	Lectures and seminars	Daily, midterm and final exams, reports and seminars
6	2	Understand nutritional Assessment	Nutritional Assessment	Lectures and seminars	Daily, midterm and final exams, reports and seminars
7	2	Describe eating Disorders	Eating Disorders :- Anorexia , Bulimia ,Obesity.	Lectures and seminars	Daily, midterm and final exams, reports and seminars
8	2	Study importance of Vitamins	Importance of Vitamins	Lectures and seminars	Daily, midterm and final exams, reports and seminars
9	2	Understand importance of Trace Elements	Importance of Trace Elements	Lectures and seminars	Daily, midterm and final exams, reports and seminars

10	2	Describe nutritional and Metabolic Effects of Alcohol	Nutritional and Metabolic Effects of Alcohol	Lectures and seminars	Daily, midterm and final exams, reports and seminars
11	2	Study dietary Supplements	Dietary Supplements	Lectures and seminars	Daily, midterm and final exams, reports and seminars
12	2	Understand nutrition in Chronic Diseases • Nutritional management in diabetes, hypertension, dyslipidemia	Nutrition in Chronic Diseases • Nutritional management in diabetes, hypertension, dyslipidemia	Lectures and seminars	Daily, midterm and final exams, reports and seminars
13	2	Describe dietary Fiber , Doping agents	Dietary Fiber , Doping agents	Lectures and seminars	Daily, midterm and final exams, reports and seminars
14	1	Study toxicants Occurring Naturally in Foods and Additives -Food Allergies and Intolerances	Toxicants Occurring Naturally in Foods and Additives -Food Allergies and Intolerances	Lectures and seminars	Daily, midterm and final exams, reports and seminars
14	1	Understand popular Diets and Their Impacts • Keto, Mediterranean, vegetarian diets. • Pros, cons, and drug-nutrient...	Popular Diets and Their Impacts • Keto, Mediterranean, vegetarian diets. • Pros, cons, and drug-nutrient implications	Lectures and seminars	Daily, midterm and final exams, reports and seminars
15	1	Describe drug-Nutrient Interactions	Drug-Nutrient Interactions	Lectures and seminars	Daily, midterm and final exams, reports and seminars

15	1	Study pharmacist's Role in Nutritional Education	Pharmacist's Role in Nutritional Education	Lectures and seminars	Daily, midterm and final exams, reports and seminars

11. Course Evaluation	
Midterm exam 30 marks Quizzes, seminars and classroom activities 10 marks Final semester exam 60 marks Total 100 marks	
12. Learning and Teaching Resources	
Required Textbooks (curricular books, if any)	Introduction to Clinical Nutrition ,Vishwanath Sardesai; CRC Pres(2003)
Main References (Sources)	Nutrition in Pharmacy Practice Cynthia L. Lieu
Recommended Supporting Books and References (scientific journals, reports …)	Krause's Food & The Nutrition Care Process , J Soldavini
Electronic References, Websites	Nutrition in Clinical Practice David L Katz ,4th edition

2nd Year- Course Description 2026-2027

1. Course Name:
Physiology III
2. Course Code:
222 AClPhy3
3. Semester / Year:
Second Semester / Second Year
4. Description Preparation Date:
9-2026
5. Available Attendance Forms:
On campus
6. Number of Credit Hours (Total) / Number of Units (Total)
Two hours/week (Theory) (30 hours) / Two units
7. Course Administrator's Name (mention all, if more than one name)
Theory: Name: Lecturer Dr. Mohannad Mahdi Damad Al-Qaisi | Email: mohened@bcms.edu.iq
8. Course Objectives

Course Objectives	To learn how gland work and organize body functions. To learn how the body deals with food To learn how the body eliminates waste by kidneys To learn how the lungs work and organize body functions
9. Teaching and Learning Strategies	
Strategy	Interactive lectures supported by presentations and animations Case-based discussion linking physiology to drug action Directed self-learning and short student seminars Daily and weekly quizzes

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or Subject Name	Learning Method	Evaluation Method
1-4	8	Understand the endocrine system	The endocrine system	Lectures and seminars	Daily, midterm and final exams, reports and seminars
5-8	8	Describe digestion and absorption of food	Digestion and absorption of food	Lectures and seminars	Daily, midterm and final exams, reports and seminars

9-12	8	Study the Kidneys and the regulation of water and inorganic ions	The Kidneys and the regulation of water and inorganic ions	Lectures and seminars	Daily, midterm and final exams, reports and seminars
13-15	6	Understand respiratory physiology	Respiratory physiology	Lectures and seminars	Daily, midterm and final exams, reports and seminars

11. Course Evaluation
Midterm exam 30 marks Quizzes and classroom activities 10 marks Final semester exam 60 marks Total 100 marks

12. Learning and Teaching Resources	
Required Textbooks (curricular books, if any)	Vander's Human physiology: the mechanisms of body function. Eric P. Widmaier, Hershel Raff, Kevin T. Strang, last edition
Main References (Sources)	Guyton and Hall Textbook of Medical Physiology, latest edition
Recommended Supporting Books and References (scientific journals, reports …)	Ganong's Review of Medical Physiology, latest edition
Electronic References, Websites	www.physiology.org | Khan Academy — Human Physiology

2nd Year- Course Description 2026-2027

1. Course Name:	
Pharmacognosy	
2. Course Code:	
223 ChPP	
3. Semester / Year:	
Second semester/ Second year	
4. Description Preparation Date:	
9-2026	
5. Available Attendance Forms:	
Attendance	
6. Number of Credit Hours (Total) / Number of Units (Total)	
2 hours/week (Theory) , 2 hours/week (Practical) (60 hours) , Total units = 3	
7. Course Administrator's Name (mention all, if more than one name)	
Lect. Dr. Haider Mohammed Badee haider.mohammed.badee@bcms.edu.iq Lab instructors: Assist. Lect. Huda Saaran Hosny Hsaaz16@bcms.edu.iq	
8. Course Objectives	
Course Objectives	· Demonstrate knowledge of the taxonomy, morphology, plant collection of medicinal plants. · Roles of medicinal plants and their active constituents. · Explain the biosynthesis, chemistry, and pharmacological activities of major classes of phytochemicals. · Explain the extraction, separation, isolation, and identification of bioactive natural products.
9. Teaching and Learning Strategies	
Strategy	· Presentation and recitation · Interactive discussions · Brainstorming · Small groups · Research and induction · Flipped rows · Discussions · Field visits to institutions and entities related to fishing work · Volunteer work, seminars, workshops and exhibitions
10. Course Structure	

2nd Year- Course Description 2026-2027

Week	Hours	Required Learning Outcomes	Unit or Subject Name	Learning Method	Evaluation Method
1	1	Understand general Introduction	General Introduction: The Scope of Pharmacognosy, definitions and basic principles.	Lectures and practical laboratories	Daily, midterm and final exams, practical exam, reports
1	1	Describe drugs from natural sources, crud drugs, official and non-official drugs	Drugs from natural sources, crud drugs, official and non-official drugs.	Lectures and practical laboratories	Daily, midterm and final exams, practical exam, reports
2	1	Study classification of natural products	Classification of natural products.	Lectures and practical laboratories	Daily, midterm and final exams, practical exam, reports
2	1	Understand plant nomenclature and taxonomy	Plant nomenclature and taxonomy.	Lectures and practical laboratories	Daily, midterm and final exams, practical exam, reports
3	2	Describe production of crude drugs	Production of crude drugs: Cultivation, collection, drying and storage.	Lectures and practical laboratories	Daily, midterm and final exams, practical exam, reports
4	2	Study deterioration of crude natural products	Deterioration of crude natural products.	Lectures and practical laboratories	Daily, midterm and final exams, practical exam, reports

5	2	Understand quality control	Quality control: Evaluation of natural products; macroscopical evaluation; physical evaluation; chemical evaluation; biological evaluation; spectroscopical evaluation.	Lectures and practical laboratories	Daily, midterm and final exams, practical exam, reports
6-7	4	Describe phytochemical investigation of herbal products	Phytochemical investigation of herbal products: Extraction of the plant material; Separation and isolation of constituents; characterization of the isolated compounds.	Lectures and practical laboratories	Daily, midterm and final exams, practical exam, reports
8	2	Study separation technique	Separation technique: Introduction; Mechanisms of separation and classification based on the type of technique	Lectures and practical laboratories	Daily, midterm and final exams, practical exam, reports
9	2	Understand paper chromatography	paper chromatography	Lectures and practical laboratories	Daily, midterm and final exams, practical exam, reports
10	2	Describe thin layer chromatography	Thin layer chromatography	Lectures and practical laboratories	Daily, midterm and final exams, practical exam, reports

11	2	Study column chromatography	Column chromatography	Lectures and practical laboratories	Daily, midterm and final exams, practical exam, reports
12	2	Understand ion-exchange chromatography and Gel filtration chromatography	Ion-exchange chromatography and Gel filtration chromatography	Lectures and practical laboratories	Daily, midterm and final exams, practical exam, reports
13	2	Describe gas chromatography	Gas chromatography	Lectures and practical laboratories	Daily, midterm and final exams, practical exam, reports
14	2	Study high performance liquid chromatography	High performance liquid chromatography	Lectures and practical laboratories	Daily, midterm and final exams, practical exam, reports
15	2	Understand electrophoresis and Affinity chromatography	Electrophoresis and Affinity chromatography.	Lectures and practical laboratories	Daily, midterm and final exams, practical exam, reports

11. Course Evaluation

- 20 M Theoretical assessments; (paper-based mid-term exam + attendance + seminar)
- 20 M practical assessment (attendance + quiz + practice+ oral-based exam)
- 60 M paper-based theoretical final exam

_____ 100 M total

12. Learning and Teaching Resources

Required Textbooks (curricular books, if any)	Trease and Evans Pharmacognosy; 16th ed., 2009
Main References (Sources)	Textbook of Pharmacognosy and Phytochemistry by Biren Shah ,2010
Recommended Supporting Books and References (scientific journals, reports …)	Chromatographic Analysis of Pharmaceuticals by John A. Adamovics: Second Edition,2021
Electronic References, Websites	Thin layer chromatography 2nd edition Egon stahl. 1990

2nd Year- Course Description 2026-2027

1. Course Name:
Biochemistry I
2. Course Code:
224 AClBc1
3. Semester / Year:
Second Semester / Second Year
4. Description Preparation Date:
9-2026
5. Available Attendance Forms:
In-person attendance
6. Number of Credit Hours (Total) / Number of Units (Total)
3 hours/week (Theory) , 2 hours/week (Practical) (75 hours) , Total units = 4
7. Course Administrator's Name (mention all, if more than one name)
Theory: Name: Assist. Prof. Dr. Zainab Nazar | Email: zainab.nazar@bcms.edu.iq Practical: Name: Assistant Lecturer Yousef Alwan | Email: yousefalwan@bcms.edu.iq
8. Course Objectives

Course Objectives	Providing students with the principles of biochemistry related to important biological molecules and preparing them to discuss the metabolism of these molecules. Providing students with the necessary technical skills in the field of biochemistry.
9. Teaching and Learning Strategies	
Strategy	Presentation and recitation Interactive discussions Brainstorming Research and induction

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or Subject Name	Learning Method	Evaluation Method
1	3	Understand familiarity with what biochemistry studies	Familiarity with what biochemistry studies	Lectures and practical laboratories	Daily, midterm and final exams, practical exam, reports

2	3	Describe amino Acids	Amino Acids: Structure, classification, properties, and forms of amino acids.	Lectures and practical laboratories	Daily, midterm and final exams, practical exam, reports
3	3	Study chemical reactions, zwitterion, isoelectric pH, non-proteogenic amino acids, and clinical importance	Chemical reactions, zwitterion, isoelectric pH, non-proteogenic amino acids, and clinical importance	Lectures and practical laboratories	Daily, midterm and final exams, practical exam, reports
4	3	Understand peptide bond, structure and function of some important peptides in human	Peptide bond, structure and function of some important peptides in human	Lectures and practical laboratories	Daily, midterm and final exams, practical exam, reports
5	3	Describe order of protein structure, bonds in proteins of different order of structure	Order of protein structure, bonds in proteins of different order of structure	Lectures and practical laboratories	Daily, midterm and final exams, practical exam, reports
6	3	Study determination of the amino acids sequence in primary order proteins,	Determination of the amino acids sequence in primary order proteins,	Lectures and practical laboratories	Daily, midterm and final exams, practical exam, reports
7	3	Understand determination of the N and C termini	Determination of the N and C termini.	Lectures and practical laboratories	Daily, midterm and final exams, practical exam, reports
8	3	Describe chemistry, classification of carbohydrates	Chemistry, classification of carbohydrates	Lectures and practical laboratories	Daily, midterm and final exams, practical exam, reports

9	3	Study clinical importance and classification, saturated and unsaturated fatty acids	Clinical importance and classification, saturated and unsaturated fatty acids	Lectures and practical laboratories	Daily, midterm and final exams, practical exam, reports
10	3	Understand enzymes structure, nomenclature, and classification	Enzymes structure, nomenclature, and classification	Lectures and practical laboratories	Daily, midterm and final exams, practical exam, reports
11	3	Describe general principles, factors affecting the rate of enzyme catalyzed reaction	General principles, factors affecting the rate of enzyme catalyzed reaction	Lectures and practical laboratories	Daily, midterm and final exams, practical exam, reports
12	3	Study the competitive and noncompetitive inhibitors, irreversible inhibition	The competitive and noncompetitive inhibitors, irreversible inhibition	Lectures and practical laboratories	Daily, midterm and final exams, practical exam, reports
13	3	Understand the ideal enzyme-catalyzed step for regulation of a metabolic pathway,	The ideal enzyme-catalyzed step for regulation of a metabolic pathway,	Lectures and practical laboratories	Daily, midterm and final exams, practical exam, reports
14	3	Describe the basic principles of endocrine hormone action	The basic principles of endocrine hormone action	Lectures and practical laboratories	Daily, midterm and final exams, practical exam, reports
15	3	Study the roles of stimulus, hormone release, signal generation, and response	The roles of stimulus, hormone release, signal generation, and response	Lectures and practical laboratories	Daily, midterm and final exams, practical exam, reports
11. Course Evaluation					

Midterm exam 15 marks Quizzes and homework 5 marks Practical part 20 marks Final semester exam 60 marks Total 100 marks	
12. Learning and Teaching Resources	
Required Textbooks (curricular books, if any)	Harper's Illustrated Biochemistry, 32 ed,
Main References (Sources)	Lippincott Illustrated Reviews: Biochemistry ,7th ed.
Recommended Supporting Books and References (scientific journals, reports …)	Lehninger Principles of Biochemistry, 8th ed.
Electronic References, Websites	المصدر 4

2nd Year- Course Description 2026-2027

1. Course Name:	
Personal and Professional Development	
2. Course Code:	
225 PhPpd	
3. Semester / Year:	
Second Semester / Second Year	
4. Description Preparation Date:	
9-2026	
5. Available Attendance Forms:	
On campus	
6. Number of Credit Hours (Total) / Number of Units (Total)	
Two hours/week (Theory) (30 hours) / Two units	
7. Course Administrator's Name (mention all, if more than one name)	
Name: ..... / Email:	
8. Course Objectives	
Course Objectives	Explain the meaning of professionalism and the formation of professional identity in pharmacy. Apply the code of ethics and professional conduct expected of a pharmacy student and practitioner. Practise self-awareness, reflective practice and emotional intelligence. Use effective time management, goal setting and study skills. Communicate effectively in verbal, non-verbal and written forms with patients and colleagues. Work effectively within a team and in interprofessional settings. Apply critical thinking and structured problem solving to professional situations. Plan a career path and build a professional CV, portfolio and continuing development plan.
9. Teaching and Learning Strategies	
Strategy	Interactive lectures and facilitated discussion Role play and simulated patient/colleague interactions Reflective writing and personal portfolio building Group projects and student presentations Peer and self assessment
10. Course Structure	

2nd Year- Course Description 2026-2027

Week	Hours	Required Learning Outcomes	Unit or Subject Name	Learning Method	Evaluation Method
1	2	Understand introduction to professionalism and professional identity	Introduction to professionalism and professional identity	Lectures and seminars	Daily, midterm and final exams, reports and seminars
2	2	Describe codes of ethics and professional conduct	Codes of ethics and professional conduct	Lectures and seminars	Daily, midterm and final exams, reports and seminars
3	2	Study self-awareness, reflection and emotional intelligence	Self-awareness, reflection and emotional intelligence	Lectures and seminars	Daily, midterm and final exams, reports and seminars
4	2	Understand time management, goal setting and study skills	Time management, goal setting and study skills	Lectures and seminars	Daily, midterm and final exams, reports and seminars
5-6	4	Describe communication skills and basics of patient counselling	Communication skills and basics of patient counselling	Lectures and seminars	Daily, midterm and final exams, reports and seminars
7	2	Study teamwork and interprofessional collaboration	Teamwork and interprofessional collaboration	Lectures and seminars	Daily, midterm and final exams, reports and seminars
8	2	Understand critical thinking and problem solving	Critical thinking and problem solving	Lectures and seminars	Daily, midterm and final exams, reports and seminars
9	2	Describe leadership and decision making	Leadership and decision making	Lectures and seminars	Daily, midterm and final exams, reports and seminars
10	2	Study lifelong learning and continuing professional development	Lifelong learning and continuing professional development	Lectures and seminars	Daily, midterm and final exams, reports and seminars

11	2	Understand career planning, CV writing and interview skills	Career planning, CV writing and interview skills	Lectures and seminars	Daily, midterm and final exams, reports and seminars
12	2	Describe digital professionalism and scientific information literacy	Digital professionalism and scientific information literacy	Lectures and seminars	Daily, midterm and final exams, reports and seminars
13	2	Study stress management and resilience	Stress management and resilience	Lectures and seminars	Daily, midterm and final exams, reports and seminars
14-15	4	Understand portfolio presentation and reflective report	Portfolio presentation and reflective report	Lectures and seminars	Daily, midterm and final exams, reports and seminars

11. Course Evaluation
Midterm exam 20 marks Reflective portfolio and presentation 20 marks Classroom activities and role play 10 marks Final semester exam 50 marks Total 100 marks

12. Learning and Teaching Resources	
Required Textbooks (curricular books, if any)	Pharmacy Student Survival Guide, latest edition
Main References (Sources)	FIP Global Competency Framework for Pharmacy
Recommended Supporting Books and References (scientific journals, reports ...)	Communication Skills in Pharmacy Practice — Beardsley, Kimberlin and Tindall, latest edition
Electronic References, Websites	www.fip.org | www.pharmaceutical-journal.com | Iraqi Pharmacists Syndicate resources