Course Description Form Biochemistry

1. Course Name:

Biochemistry

2. Course Code:

BICH204

3. Semester / Year:

First semester (fall) / **2024 -2025** \ 2st

4. Description Preparation Date:

1 / 9 / 2024

5. Available Attendance Forms:

Presence

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

2 theoretical hours + 3 practical hours (75 hours) / 3.5 units

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

Dr.Qaswaa yousif jameel dr.qaswaa_yousif@uomosul.edu.iq
Afkar yahya ahmed

8. Course Objectives

Theoretical	Practical
–Enabling the student to understand and comprehend the science of biochemistry **–Enable the student to know the chemical composition of carbohydrates, proteins, and lipids** **– Enabling the student to be familiar with the most important sources of carbohydrates, proteins and fats** **–Empowering the student with the ability to detect different types of vital components in the organism's body** **District**	**Enabling the student to become familiar with the principles and modern methods in…** **Study of biochemical sciences as well as study Synthesis of proteins, carbohydrates, and fats and the tests performed on them**

9. Teaching and Learning Strategies

Theoretical:	Practical:
- Interactive lecture - Brainstorming - Dialogue and discussion - Assigning reports -Conducting monthly and	Interactive lecture -Discussion, dialogue, brainstorming -Conducting laboratory experiments -Assigning reports -Conducting daily and

daily examinations	monthly examinations

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2Theoretical 3Practical	Theoretical: B1: Explains to the stude the concept of chemistry Biotechnology and the st of water properties Practical: B2:Shows the student ho to apply Laboratory safety rules	THEORETICAL the study of water and its properties Practical: safety rules an specifications in Laboratories	THEORETICAL audio methods, Writing on the board Direct dialogue style PRACTICAL Assigning tasks and reports	Shortexams, assignments, discussions
2	2Theoretical 3Practical	THEORETICAL C1: Explains to the stude the most important differences in the chemic composition of carbohydrates practical: a2: Explains to the stude how to detect Carbohydrates and their types	THEORETICAL Theoretical: auditory methods, Writing on the board Dialogue style Direct Practical: Assigning tasks Short exam reports and assignments for discussi	THEORETICAL audio methods, Writing on the board Direct dialogue style PRACTICAL Assigning tasks and reports	Shortexams, assignments, discussions
3	2Theoretical 3Practical	THEORETICAL :b2 The student is familia with the factors affecting amino acids and peptide practical: : b3 The student is famili with the most important tests General carbohydrates	THEORETICAL CARBOHYDRATES Practical: Carbohydrates and their types	THEORETICAL audio methods, Writing on the board Direct dialogue style PRACTICAL Assigning tasks and reports	Shortexams, assignments, discussions
4	2Theoretical 3Practical	THEORETICAL A1: The student learns about the mechanism of action of proteins, their properties, and their structure practical: b4: The student learns	THEORETICAL auditory methods, Writing on the board Dialogue style Direct Practical: Assigning tasks And reports Short exams, assignment	THEORETICAL audio methods, Writing on the board Direct dialogue Style PRACTICAL Assigning tasks and reports	Shortexams, assignments, discussions

		about the reduction tests carbohydrates	discussions		
5	2Theoretical 3Practical	THEORETICAL C2: Explains to the stude the changes that occur in lipids, their composition and properties. practical: b5: Explains the tests to t student Description of carbohydrates	Theoretical Amino acids and peptide Practical: solubility test a Molsch test.	THEORETICAL audio methods, Writing on the board Direct dialogue style PRACTICAL Assigning tasks and reports	Shortexams, assignments, discussions
6	2Theoretical 3Practical	THEORETICAL C3: Proposes to the stude a method suitable for the natural and chemical properties of neutral fats practical: a3: Tests related to fats a suggested to the student	Theoretical: audio metho Writing on the board Dialogue style Direct Practical: Assigning tasks Short exam reports, assignments, and discussions	THEORETICAL audio methods, Writing on the board Direct dialogue style PRACTICAL Assigning tasks and reports	Shortexams, assignments, discussions
7	2Theoretical 3Practical	THEORETICAL C4: The student is familia with the most important changes that occur in phosphorylated fats (phospholipids). practical: a4: The student is familia with screening tests Clycerol	THEORETICAL Proteins practical Reductive tests for carbohydrates	THEORETICAL audio methods, Writing on the board Direct dialogue style PRACTICAL Assigning tasks and reports	Shortexams, assignments, discussions
8	2Theoretical 3Practical	THEORETICAL A2 :The student recogniz the most important chan Which occurs in enzymes and restriction Its agents practical: a5: The student learns ho to examine The pH of many solutions the organization	THEORETICAL auditory methods, Writing on the board Dialogue style Direct Practical: Assigning tasks Short exam reports, assignments, and discussions	THEORETICAL audio methods, Writing on the board Direct dialogue style PRACTICAL Assigning tasks and reports	Shortexams, assignments, discussions
9	2Theoretical 3Practical	THEORETICAL B3 :The student judges h competence	THEORETICAL Lipids	THEORETICAL audio methods, Writing on the board	Shortexams, assignments, discussions

		Nucleotides and nucleic acids **In the metabolic processe of living organisms** **Practical:** **A6: The student is given general and descriptive tests for amino acids**	**Practical: Descriptive tes For carbohydrates**	**Direct dialogue style** **PRACTICAL** **Assigning tasks and reports**	
10	**2Theoretical** **3Practical**	**THEORETICAL** **A3: The student learns about the most importan chemical structures of nucleic acids (polynucleotides).** **practical:** **b6: Explains to the stude methods for detecting amino acids containing sulfur**	**Theoretical: auditory methods,** **Writing on the board** **Dialogue style** **Direct** **Practical: Assigning tasks** **Short exam reports, assignments, and discussions**	**THEORETICAL** **audio methods,** **Writing on the board** **Direct dialogue style** **PRACTICAL** **Assigning tasks and reports**	**Shortexams, assignments, discussions**
11	**2Theoretical** **3Practical**	**THEORETICAL** **B4 : The student masters method and types of nucl acids** **practical:** **a1: The student takes the Millon test and the xanthoproteic test**	**THEORETICAL** **Physical and chemical properties of neutral fats** **Practical: special tests fo lipids**	**THEORETICAL** **audio methods,** **Writing on the board** **Direct dialogue style** **PRACTICAL** **Assigning tasks and reports**	**Shortexams, assignments, discussions**
12	**2Theoretical** **3Practical**	**THEORETICAL** **E1: The student determin the mode of action and th importance of vitamins i the body of a living organism** **practical:** **c7: The student mentions descriptive tests for proteins**	**THEORETICAL** **.** **audio methods,** **Writing on the board** **Dialogue style** **Direct** **Practical:** **Assigning tasks** **And reports** **Short exams, assigned assignments and discussions**	**THEORETICAL** **audio methods,** **Writing on the board** **Direct dialogue style** **PRACTICAL** **Assigning tasks and reports**	**Shortexams, assignments, discussions**
13	**2Theoretical** **3Practical**	**THEORETICAL** **A4: The student learns abo the types of fat-soluble vitamins and common dise resulting from their deficie in the organism's body.** **practical:** **a 8: The student learns abo**	**THEORETICAL** **Common diseases resulti from vitamin deficiency** **Practical: protein precipitation** **With heavy metal salts,**	**THEORETICAL** **audio methods,** **Writing on the board** **Direct dialogue style** **PRACTICAL** **Assigning tasks and reports**	**Shortexams, assignments, discussions**

		a test Biuret			
14	2Theoretical 3Practical	THEORETICAL B3 :The student learns about the types of fat-soluble vitamins and common diseases resulti from their deficiency in t organism's body. practical: a6: Characterizes the precipitation of proteins with salts Heavy metals	THEORETICAL Theoretical: auditory methods, Writing on the board Direct dialogue style Practical: Assigning tasks Short exam reports, assignments and discussions	THEORETICAL audio methods, Writing on the board Direct dialogue style PRACTICAL Assigning tasks and reports	Shortexams, assignments, discussions
15	2Theoretical 3Practical	THEORETICAL C5: The student is familiar with how to write reports Result of field visit to laboratories Biochemistry practical: C8: The student is familiar with how to write reports Result of field visit to laboratories Biochemistry	THEORETICAL biochemistry laboratorie audio methods, Writing on the board Direct dialogue style Practical: Assigning tasks And reports Short exams, assigned assignments and discussions	THEORETICAL audio methods, Writing on the board Direct dialogue style PRACTICAL Assigning tasks and reports	Shortexams, assignments, discussions

11.Course Evaluation

No.	Evaluation methods	Evaluation date (one week)	Grade	Relative weight %
1	Report 1	fourth week	2.5	2.5
2	Report 2	fifth week	2.5	2.5
3	(1)Quiz	sixth week	2	2
4	(2)Quiz	fourteenth week	2	2
5	(3)Quiz	fifteenth week	1	1
6	Mid 1	sixth week	7.5	7.5
7	Mid2	Eleventh week	7.5	7.5
8	theoretical exams Final	Final semester exams	40	40
9	Practical field project	The fifteenth week	5	5
10	Seminars	The third and fifth week	2	2
11	Practical (1) Quiz	The first week	1	1

12	**Practical (2) Quiz**	**fourth week**	**0.5**	**0.5**
13	**Practical (3) Quiz**	**The fourteenth week**	**6.5**	**6.5**
15	**Final practical test**	**Final semester exams**	**20**	**20**
	Total	**100**	**%100**	**%100**

11. Learning and Teaching Resources

Required textbooks (curricular books, if any)	
Main references (sources)	
Recommended books and references (scientific journals, reports…)	Many articles and research published in Springer, Elsevier, SPRINGER NATURE
Electronic References, Websites	

Assistant Professor

Qaswaa yousif jameel

Assistant Lecturer

Afkar yahya ahmed

جامعة الموصل
كلية الزراعة والغابات
قسم علوم التربة والموارد المائية

Chairman of the scientific committee

Dr. Abdalkader Absh Sbak

Head of Department
Professor
Dr. Khalid Anwar Khalid