

## Course Description Form Biochemistry

### 1. Course Name:

Biochemistry

### 2. Course Code:

BICH204

### 3. Semester / Year:

First semester (fall) / 2023–2024 \ 2st

### 4. Description Preparation Date:

2023\9\1

### 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)

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Afkar yahya ahmed

### 8. Course Objectives

#### Theoretical

- 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

#### Practical

- 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:

- Interactive lecture
- Brainstorming
- Dialogue and discussion

#### Practical:

- Interactive lecture
- Discussion, dialogue, brainstorming
  - Conducting laboratory experiments

- Assigning reports -Conducting monthly and daily examinations	-Assigning reports -Conducting daily and monthly examinations
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## 10. Course Structure

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

		<p>practical: b4: The student learns about the reduction tests carbohydrates</p>	<p>Practical: Assigning tasks And reports Short exams, assignments discussions</p>	<p>PRACTICAL Assigning tasks and reports</p>	
5	2Theoretical 3Practical	<p>THEORETICAL C2: Explains to the student the changes that occur in lipids, their composition and properties.</p> <p>practical: b5: Explains the tests to the student Description of carbohydrates</p>	<p>Theoretical Amino acids and peptide Molsch test.</p> <p>Practical: solubility test</p>	<p>THEORETICAL audio methods, Writing on the board Direct dialogue style PRACTICAL Assigning tasks and reports</p>	<p>Shortexams, assignments, discussions</p>
6	2Theoretical 3Practical	<p>THEORETICAL C3: Proposes to the student a method suitable for the natural and chemical properties of neutral fats</p> <p>practical: a3: Tests related to fats as suggested to the student</p>	<p>Theoretical: audio methods Writing on the board Dialogue style Direct</p> <p>Practical: Assigning tasks Short exam reports, assignments, and discussions</p>	<p>THEORETICAL audio methods, Writing on the board Direct dialogue style PRACTICAL Assigning tasks and reports</p>	<p>Shortexams, assignments, discussions</p>
7	2Theoretical 3Practical	<p>THEORETICAL C4: The student is familiar with the most important changes that occur in phosphorylated fats (phospholipids).</p> <p>practical: a4: The student is familiar with screening tests Glycerol</p>	<p>THEORETICAL Proteins</p> <p>practical Reductive tests for carbohydrates</p>	<p>THEORETICAL audio methods, Writing on the board Direct dialogue style PRACTICAL Assigning tasks and reports</p>	<p>Shortexams, assignments, discussions</p>
8	2Theoretical 3Practical	<p>THEORETICAL A2 :The student recognizes the most important changes which occurs in enzymes and restriction Its agents</p> <p>practical: a5: The student learns how to examine The pH of many solutions the organization</p>	<p>THEORETICAL auditory methods, Writing on the board Dialogue style Direct Practical: Assigning tasks Short exam reports, assignments, and discussions</p>	<p>THEORETICAL audio methods, Writing on the board Direct dialogue style PRACTICAL Assigning tasks and reports</p>	<p>Shortexams, assignments, discussions</p>

9	2Theoretical 3Practical	<p><b>THEORETICAL</b> B3 :The student judges his competence Nucleotides and nucleic acids In the metabolic processes of living organisms</p> <p><b>Practical:</b> A6: The student is given general and descriptive tests for amino acids</p>	<p><b>THEORETICAL</b> Lipids</p> <p><b>Practical: Descriptive tests</b> For carbohydrates</p>	<p><b>THEORETICAL</b> audio methods, Writing on the board Direct dialogue style <b>PRACTICAL</b> Assigning tasks and reports</p>	Shortexams, assignments, discussions
10	2Theoretical 3Practical	<p><b>THEORETICAL</b> A3: The student learns about the most important chemical structures of nucleic acids (polynucleotides).</p> <p><b>practical:</b> b6: Explains to the student methods for detecting amino acids containing sulfur</p>	<p><b>Theoretical: auditory methods,</b> Writing on the board Dialogue style Direct</p> <p><b>Practical: Assigning tasks</b> Short exam reports, assignments, and discussions</p>	<p><b>THEORETICAL</b> audio methods, Writing on the board Direct dialogue style <b>PRACTICAL</b> Assigning tasks and reports</p>	Shortexams, assignments, discussions
11	2Theoretical 3Practical	<p><b>THEORETICAL</b> B4 : The student masters method and types of nucleic acids</p> <p><b>practical:</b> a1: The student takes the Millon test and the xanthoproteic test</p>	<p><b>THEORETICAL</b> Physical and chemical properties of neutral fats</p> <p><b>Practical: special tests for lipids</b></p>	<p><b>THEORETICAL</b> audio methods, Writing on the board Direct dialogue style <b>PRACTICAL</b> Assigning tasks and reports</p>	Shortexams, assignments, discussions
12	2Theoretical 3Practical	<p><b>THEORETICAL</b> E1: The student determines the mode of action and the importance of vitamins in the body of a living organism</p> <p><b>practical:</b> c7: The student mentions descriptive tests for proteins</p>	<p><b>THEORETICAL</b> audio methods, Writing on the board Dialogue style Direct</p> <p><b>Practical:</b> Assigning tasks And reports Short exams, assigned assignments and discussions</p>	<p><b>THEORETICAL</b> audio methods, Writing on the board Direct dialogue style <b>PRACTICAL</b> Assigning tasks and reports</p>	Shortexams, assignments, discussions
13	2Theoretical 3Practical	<p><b>THEORETICAL</b> A4: The student learns about the types of fat-soluble vitamins and common diseases resulting from their deficiency in the organism's body.</p>	<p><b>THEORETICAL</b> Common diseases resulting from vitamin deficiency</p> <p><b>Practical: protein precipitation</b> With heavy metal salts,</p>	<p><b>THEORETICAL</b> audio methods, Writing on the board Direct dialogue style <b>PRACTICAL</b> Assigning tasks</p>	Shortexams, assignments, discussions

		practical: a 8: The student learns about a test Biuret		and reports	
14	2Theoretical 3Practical	THEORETICAL  B3 :The student learns about the types of fat-soluble vitamins and common diseases resulting from their deficiency in the 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 laboratories 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
	<b>Total</b>	<b>100</b>	<b>%100</b>	<b>%100</b>

## 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

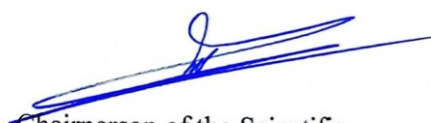


Assistant Lecturer

Afkar yahya ahmed



Head Of Department

Chairperson of the Scientific Committee