Course Description Form

1. Course Name:

Technology Biochemistry

2. Course Code:

TEBIO322

3. Semester / Year:

Second semester (fall) / 2024−2025

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)

Name: Dr.Arqam Mohamad Alomary
and Farah Sameer Salh

8. Course Objectives

Theoretical	Practical
- Students learn the importance of basic life technology principles 2. The importance of analytical programs in daily life and the economic and educational importanc of this program 3. And penetrate the available means to explain t proposed program and identify the characteristic of the devices accurately 4. How to employ technology and technological machines to develop the proposed program 5. Huge students will apply and employ this new program as one of the most important standards the future in society 6. Civil and governmental institutions, or where t program does not exist, as well as linking or employing students through understanding the concepts of life technologies.	- Introducing the student to the most important conditions that must be met in an ideal laboratory Introducing and informing the student about the most important devices and equipment Used in the laboratory Enabling the student to prepare solutions in more than one way Introducing the student to some life technologies

9. Teaching and Learning Strategies

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

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2Theoretical 3Practical	**It shows the importance of life technologies in our daily, econom and medical lives The student gets to know the most important specifications And safety conditions in the laboratory**	**THEORETICAL** An overview of the life technologies subject **PRACTICAL** Instructionsand instructions for biological laboratory	**Lectures, audio media, reports, reports and othe methods**	Discussing answers questions during thelecture, student interaction during lesson,giving homework,an exams
2	2Theoretical 3Practical	**THEORETICAL** It addresses the important details of biological diversity, which is a basic unit for the composition the living body **PRACTICAL** Identify solutions, classify them, and express their concentrations	**THEORETICAL** Living cell **PRACTICAL Classification of solutions and methods of expressing their concentrations**	**Lectures, audio media, reports, reports and othe methods**	Discussing answers questions during thelecture, student interaction during lesson,giving homework,an exams
3	2Theoretical 3Practical	**THEORETICAL** He is familiar with the process of replication in the living cell, which is the basis of the process of asexual sexual reproduction Familiar with **PRACTICAL methods of expressing the concentrations of solutions**	**THEORETICAL** Replication in a living cell **PRACTICAL** Methods of expressing the concentrations of solutions	**Lectures, audio media, reports, reports and othe methods**	Discussing answers questions during thelecture, student interaction during lesson,giving homework,an exams

4	2Theoretical 3Practical	**THEORETICAL** Learn about the bas steps for cloning a gene or transferring information to anotl organism, starting with genetic cloning **PRACTICAL** Proficient in solving mathematical examples of preparing solutions	**THEORETICAL** Reproduction in a living cell **PRACTICAL** Solve some mathematical examples	**Lectures, audio media, reports, reports and othe methods**	Discussing answers questions during thelecture, student interaction during lesson,giving homework,an exams
5	2Theoretical 3Practical	**THEORETICAL** It explains the process of convertin the twenty amino acids into proteins with physical, structural, or functional functions **PRACTICAL** Recognizes abbreviations for expressing concentrations, met prefixes, and stock solutions	**theoretical** Translation in the living cell **PRACTICAL** Abbreviations for concentrations, met prefixes, and stock solution	**Lectures, audio media, reports, reports and other methods**	Discussing answers questions during thelecture, student interaction during lesson,giving homework,an exams
6	2Theoretical 3Practical	**THEORETICAL** It proposes an appropriate method for understanding, understanding and applying procedures related to the aforementioned concept **PRACTICAL** Learn about ways t break down cells	**THEORETICAL** What are the foundations of the differences and similarities between replication and clon in prokaryotic and eukaryotic cells? **PRACTICAL** Methods of destroy cells	**Lectures, audio media, reports, reports and other methods**	Discussing answers questions during thelecture, student interaction during lesson,giving homework,an exams
7	2Theoretical 3Practical	**THEORETICAL** **He is aware of the**	**THEORETICAL** Food environments	**Lectures, audio media, reports,**	Discussing answers

		importance of genes in transmitting traits from parent to children **PRACTICAL** **Mentions the main steps of DNA extraction**	**PRACTICAL** Count bacteria by Hemocytometer slide	**reports and other methods**	questions during thelecture, student interaction during lesson,giving homework,an exams
8	2Theoretical 3Practical	**THEORETICAL** Learn how to convert nitrogenous bases into essential amino acids in the body and thus into proteins **PRACTICAL** He is familiar with DNA Purification from cell extract	**THEORETICAL** Encoding nucleotides into amino acids. **PRACTICAL** Purification of DNA from cell extract	**Lectures, audio media, reports, reports and othe methods**	Discussing answers questions during thelecture, student interaction during lesson,giving homework,an exams
9	2Theoretical 3Practical	**THEORETICAL** Judges to learn more about the importance of proteins in the body of an organism **PRACTICAL** Deposition of DNA	**THEORETICAL** Proteins. **PRACTICAL** DNA precipitation	**Lectures, audio media, reports, reports and other methods**	Discussing answers questions during thelecture, student interaction during lesson,giving homework,an exams
10	2Theoretical 3Practical	**THEORETICAL** The student learns about the applicatio of procedures relate to the concept of wa and means of using devices **PRACTICAL** Learn about electrophoresis of DNA in agarose gel	**THEORETICAL** Levels of protein folding and what are the most important substances affecting the synthesis and denaturation of proteins. **PRACTICAL** Electrophoresis of DNA in agarose	**Lectures, audio media, reports, reports and other methods**	Discussing answers questions during thelecture, student interaction during lesson,giving homework,an exams

			Gel		
11	2Theoretical 3Practical	**THEORETICAL** He masters how to convert the genes possessed by the cel into essential protei that are important f the body **PRACTICAL** Determines the factors affecting migration through a agarose ge	**THEORETICAL** Regulation of gene expression in eukaryotes occurs a several levels. **PRACTICAL** Factors affecting migration through agarose ge	Lectures, audio media, reports, reports and other methods	Discussing answers questions during thelecture, student interaction during lesson,giving homework,an exams
12	2Theoretical 3Practical	**THEORETICAL** Identify the basic components of prot formation **PRACTICAL** Mention the steps involved in electrica relay	**THEORETICAL** The repression process of encoding proteins. **PRACTICAL** The process of verti migration of protein using acrylamide ge	Lectures, audio media, reports, reports and other methods	Discussing answers questions during thelecture, student interaction during lesson,giving homework,an exams
13	2Theoretical 3Practical	**THEORETICAL** Identify the mostimportant mutations that make up proteins **PRACTICAL** Learn about practical applicatior gel casting and setting	**THEORETICAL** Genetic mutations a their effect on the formation of protein Giving practical examples of genetic mutations that affec proteins **PRACTICAL** Steps followed in detail for electrical relay	Lectures, audio media, reports, reports and other methods	Discussing answers questions during thelecture, student interaction during lesson,giving homework,an exams
14	2Theoretical 3Practical	**THEORETICAL** **Identify the most** important mutation that make up Proteins **PRACTICAL** Learn about the	**THEORETICAL** Genetic mutations a their effect on the formation of protein Giving practical examples of genetic mutations that affec	Lectures, audio media, reports, reports and other methods	Discussing answers questions during thelecture, student interaction

		practical application gel casting and setting	proteins **PRACTICAL** Steps followed in detail for electrical relay		during lesson,giving homework,an exams
15	2Theoretical 3Practical	**THEORETICAL** Comprehensive article review. **PRACTICAL** He is familiar with the scientific visit	**THEORETICAL** Comprehensive article review. **PRACTICAL** scientific visit	**Lectures, audio media, reports, reports and other methods**	Discussing answers questions during thelecture, student interaction during lesson,giving homework,an exams

11. Course Evaluation

t	Evaluation methods	Evaluation date (one week)	Grade	Relative weight %
1	Final theoretical report + theoretical practical reports	Theoretical 15 weeks Practical 1-15 weeks	7theoretical + 6 practical	13%
2	Short test 1 Quiz	3 weeks	4theoretical + 2practical	6%
3	Midterm exam (theoretical and practical)	9 weeks	10theoretical + 5 practical	15%
4	Short test 2 Quiz	12 weeks	4 theoretical + 2 practical	6%
5	Final practical test	practical exams week	20	20%
6	Final theoretical exam	theoretical exams week	40	40%
			100	100

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	The theoretical approach to the course on the principles of biotechnology/Administrator: Dr. Faten Dhawi Al-Mahna/ Doctorate in Philosophy Biochemistry And Molecular Biology, Department of Biotechnology
Main references (sources)	The theoretical curriculum for the principl of biotechnology course/counter: Dr.. Faten Dhawi Al-Mahna/ Doctorate in Philosophy of Science

	Biochemistry and Molecular Biology Department Biotechnology
Recommended books and references (scientific journals, reports…)	Library, scientific websites on the Internet View lectures from other Iraqi universities
Electronic References, Websites	Some solid scientific websites, especially for Iraqi universities