

Course Description Form

Course Name:	
Molecular biology	
Course Code:	
MOBI435	
Semester / Year:	
First semester (fall semester) 2023-2024	
Description Preparation Date:	
1/2/2024	
Available Attendance Forms:	
Attendance	
Number of Credit Hours (Total) / Number of Units (Total)	
2 theoretical hours + 3 practical hours (75 hours) / 3.5 units	
Course administrator's name (mention all, if more than one name)	
Name: Dr. Hala Abdalhadi Salih	
Course Objectives	
Course Objectives	<p>he structure of the present core course on Molecular Biology has been magnificently designed with the perspective to achieve following key objectives:</p> <p>To provide comprehensive background of Salient features of Nucleic Acids and DNA model to the course learners.</p> <p>To impart detailed understanding of key events of molecular biology comprising of mechanism of DNA Replication, Transcription and Translation in Prokaryotes and Eukaryotes.</p> <p>To provide adequate knowledge about Post Transcriptional Modifications and</p>

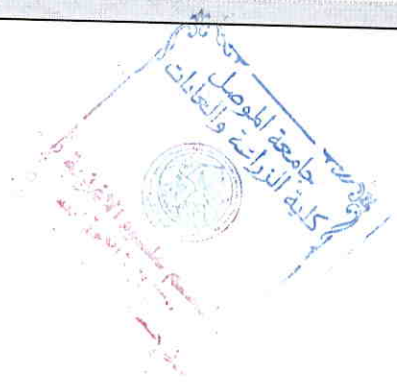
Processing of Eukaryotic RNA to the course learners.

To give detailed explanation of Transcriptional Regulation with examples of lac operon and tryptophan operon in prokaryotic as well as eukaryotic organisms along with key concept of Gene Silencing to the course learners.

Teaching and Learning Strategies

Strategy

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



Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method

1	2Theoretical	A1 Theoretical: The student understands molecular biology and the genetic material of prokaryotic organisms	THEORETICAL Introduction to molecular biology	Theoretical audio methods, Writing on the board Direct dialogue Style	Short exams, assignments, discussions
	3Practical	. Practical:A10 Learn about the general rules of laboratory study.	PRACTICAL Introduction to practical molecular biology	Practical Assigning tasks and reports	Short exams, assignments, discussions
2	2Theoretical	Theoretical:A2 schedules the structure and properties of nucleic acids.	Theoretical: Composition and properties of nuclear acids	Theoretical audio methods, Writing on the board Direct dialogue Style	Short exams, assignments, discussions

	3Practical	the practical: B2 Writes a report on the extraction of dna by different methods	Practical: Extraction of DNA in a kit method	Practical Assigning tasks and reports	Short exams, assignments, discussions
5	2Theoretical	A4 the student was able to know the equipment during visiting	Scientific visit	Practical Assigning tasks and reports	Short exams, assignments, discussions
	3Practical	B3 the student was able to know the equipment during visiting	Scientific visit	Practical Assigning tasks and reports	Short exams, assignments, discussions
6	2Theoretical	Theoretical A5 Explain the replication of DNA	Theoretical Dan replication	THEORETICAL audio methods, Writing on the board Direct dialogue Style	Short exams, assignments, discussions

	3Practical	Practical : C7 Estimate DNA concentration	Practical	PRACTICAL Assigning tasks and reports	
7	2Theoretical	Theoretical:c1 Explains the process DNA transcription what comes after it.	Theoretical DNA transcription	Theoretical audio methods, Writing on the board Direct dialogue style	Short exams, assignments, discussions
	3Practical	Practicalb4: determine DNA purity	Practical :the purity of DNA	Practical Assigning tasks and reports	Short exams, assignments, discussions
8	2Theoretical	Theoretical: C2 Explains the structure of the ribosome in eukaryotes and prokaryotes.	Theoretical Ribosomes structure in pro and eukaryotic	Theoretical audio methods, Writing on the board Direct dialogue style	Short exams, assignments, discussions

	3Practical	Practical: C8 Writes a report on estimating the purity and concentration of DNA	Practical Dna concentration and purity	Practical Assigning tasks and reports	Short exams, assignments, discussions
9	2Theoretical	I: A6 Understands the process of DNA translation	Theoretical Dna translation	Theoretical audio methods, Writing on the board Direct dialogue style	Short exams, assignments, discussions
	3Practical	Practical C9: Applying electrophoresis	Practical: gel electrophoresis	Practical Assigning tasks and reports	Short exams, assignments, discussions
10	2Theoretical	Theoreticalc3 explain the DNA mutation	Theoretical DNA mutation	Theoretical audio methods, Writing on the board Direct dialogue Style	Short exams, assignments, discussions

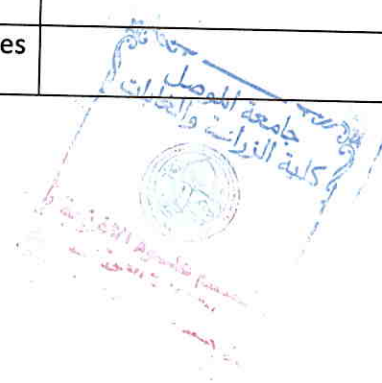
	3Practical	Practical: Applying A12 electrophoresis	Practical: gel electrophoresis	Practical Assigning tasks and reports	Short exams, assignments, discussions
11	2Theoretical	Theoretical C4 :numerate Genetic mutation	Theoretical: Genetic mutation	Theoretical audio methods, Writing on the board Direct dialogue style	Short exams, assignments, discussions
	3Practical	Practical: c10 Explains the r cloning vector	Practical: Cloning vectors	Practical Assigning tasks and reports	Short exams, assignments, discussions
12	2Theoretical	Theoretical: C5 numerate causes of genetic mutation	Theoretical: Genetic mutation	Theoretical audio methods, Writing on the board Direct dialogue style	Short exams, assignments, discussions

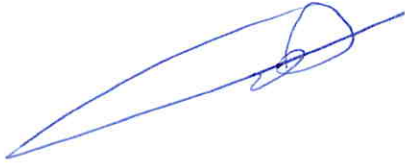
	3Practical	Practical: A13 Learn about the polymerase chain reaction techniq	practical polymerase chain reaction technique	Practical Assigning tasks and reports	Short exams, assignments, discussions
13	2Theoretical	Theoretical: A7 Seminars for of students:	Theoretical: Seminars for students:	Theoretical audio methods, Writing on the board Direct dialogue style	Short exams, assignments, discussions
	3Practical	Practical : LearnA8 about the polymerase chain reaction technique	practical experience B5 polymerase chain reaction technique	Practical Assigning tasks and reports	Short exams, assignments, discussions
14	2Theoretical 3Practical	A8 The student was able to know the equipment	Scientific visit	Theoretical: Seminars for students:	Short exams, assignments, discussions
15	2Theoretical 3Practical	The student wasA9 able to know the equipment	Scientific visit	Theoretical: Seminars for students:	Short exams, assignments, discussions
		The student wasA15 able to know the equipment	Scientific visit	practical polymerase chain reaction technique	Short exams, assignments, discussions
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

Learning and Teaching Resources

Required textbooks (curricular books, if any)	no
Main references (sources)	Principles of molecular geneticist / Dr. mohammed baker
Recommended books and references (scientific journals, reports...)	Elviser journal Nature journal
Electronic References, Websites	/https://www.scientificamerican.com/chemistry





Instructor of theoretical part

Dr. Hala Abdalhadi Salih



Chairman of the scientific committee

Prof. Dr. Moafak mahmood ahmed

Instructor of practical part



Head of the department of Food science

Prof. Dr. Sumiya kalaf badawi

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