Course Description Form Heredities Molecular

Course Name:
Heredities Molecular
Course Code
HERM402
Semester/Year
Second / 2025
Date this description was prepared
15 January 2025
Available attendance forms
In-Person
Credit Hours (total) / Number of Units (Total)
Number of hours = 5 (2 theoretical + 3 practical) , number of units = 3.5
Name of the course administrator (if more than one name is mentioned)
Dr. Nizar Suleiman Ali nazaralzUhairy@uodiyala.edu.iq Ghufran Ali Hussein
Course objective
1- Molecular genetics investigates how to provide genetic technology and laboratory technical use in the protection of genetic sources, as well as the adoption of this technology and its exploitation in the provision o animal products as a tool for selecting distinguished animals productively 2. Includes the study of gene structure, expression and design 3- Reducing the duration of animal breeding down to the product, which reduces the cost of breeding the animal from birth until obtaining the product represented by milk or meat and eggs, which are included in the production costs
Teaching and Learning Strategies
In-person lectures for 15 weeks with two monthly exams, daily exams and scientific reports
Course Structure

Week	Credits	Intended Learning Outcomes	Unit or Topic Name	Learning Method	Evaluation Method
1	2	Heredities Molecular	DNA synthesis	Lecture, explanation and presentation	Daily Exam
2	2	Heredities Molecular	DNA replication process	Lecture, explanation and presentation	Daily Exam
3	2	Heredities Molecular	Mutations Genetic	Lecture, explanation and presentation	Daily Exam
4	2	Heredities Molecular	DNA repair systems	Lecture, explanation and presentation	Daily Exam
5	2	Heredities Molecular	Board	Lecture, explanation and presentation	Daily Exam
6	2	Heredities Molecular	Regulation of gene expression	Lecture, explanation and presentation	Daily Exam
7	2	Heredities Molecular	Genetic engineering	Lecture, explanation and presentation	Daily Exam
8	2	Heredities Molecular	Cutting and binding enzymes for DNA molecules	Lecture, explanation and presentation	Daily Exam
9	2	Heredities Molecular	Types of DNA molecule vectors	Lecture, explanation and presentation	Daily Exam
10	2	Heredities Molecular	PCR technology	Lecture, explanation and presentation	Daily Exam
11	2	Heredities Molecular	Polymerization reactions outside living systems	Lecture, explanation and presentation	Daily Exam
12	2	Heredities Molecular	Types of polymerization reactions	Lecture, explanation and presentation	Daily Exam
13	2	Heredities Molecular	Basics of Polymerization Interactions	Lecture, explanation and presentation	Daily Exam
14	2	Heredities Molecular	How to migrate a replicated DNA sample	Lecture, explanation and presentation	Daily Exam
15		Heredities Molecular	Analyze gel images and read results	Lecture, explanation and presentation	Daily Exam
Practical Part					
Week	**Credits**	**Intended Learning Outcomes**	**Unit or Topic Name**	**Learning Method**	**Evaluation Method**
1	3	Heredities Molecular	Identify materials used in genetic studies and laboratory devices used in genetic experiments.	Lecture, explanation and application in the laboratory	Practical Examination and Report
2	3	Heredities Molecular	Presentation on the Structure of Genetic Material	Lecture, explanation and application in the laboratory	Practical Examination and Report

3	3	Heredities Molecular	Mechanism for the development of industrial mutations	Lecture, explanation and application in the laboratory	Practical Examination and Report
4	3	Heredities Molecular	Presentation on Genetic Repair Systems	Lecture, explanation and application in the laboratory	Practical Examination and Report
5	3	Heredities Molecular	Board	Lecture, explanation and application in the laboratory	Practical Examination and Report
6	3	Heredities Molecular	Board	Lecture, explanation and application in the laboratory	Practical Examination and Report
7	3	Heredities Molecular	Genetic engineering	Lecture, explanation and application in the laboratory	Practical Examination and Report
8	3	Heredities Molecular	Types of enzymes used in genetic engineering	Lecture, explanation and application in the laboratory	
9	3	Heredities Molecular	Studying the most important vectors used in genetic studies	Lecture, explanation and application in the laboratory	Practical Examination and Report
10	3	Heredities Molecular	Identify PCR bug	Lecture, explanation and application in the laboratory	Practical Examination and Report
11	3	Heredities Molecular	Mechanism and components of the PCR reaction	Lecture, explanation and application in the laboratory	Practical Examination and Report
12	3	Heredities Molecular	Types of PCR and its applications in the laboratory Foundations of PCR Reaction	Lecture, explanation and application in the laboratory	Practical Examination and Report
13	3	Heredities Molecular		Lecture, explanation and application in the laboratory	Practical Examination and Report

14	3	Heredities Molecular	Electric relay and its types	Lecture, explanation and application in the laboratory	Practical Examinatio n and Report
15	3	Heredities Molecular	The mechanism of imaging and reading the results of the electric relay	Lecture, explanation and application in the laboratory	

Course Evaluation
EXAMINATIONS Monthly and daily exams with discussion questions within the lecture Degree of participation in questions related to the subject

Learning and Teaching Resources;	
Required textbooks (methodology if any)	Bektash, Fadel 2006. Plant Breeding and Improvement. Faculty of Agriculture - University of Baghdad.
Key References (Sources)	
Recommended supporting books and references (scientific journals, reports)	Iraqi academic scientific journals
E-References , Websites	Soil Science Society of America Library Genesis