Course Description Form
Molecular Genetics

1. Course Name:	
Molecular Genetics	
2. Course Code:	
MOGE462	
3. Semester / Year:	
Frist semester/ Four stage/2024-2025	
4. Description Preparation Date:	
1-9-2024	
5. Available Attendance Forms:	
My presence + Electronic	
6. Number of Credit Hours (Total) / Number of Units (Total)	
3 theoretical hours / 3 units /45 hours	
7. Course administrator's name (mention all, if more than one name)	
Pro.Dr. Wiam Yahya Rasheed Al-Shakarchy **Abdullah Khder Mohammad**	
8. Course Objectives	
Course Objectives	• Enable the student to understand and understand plant genetics • Realizing the relationship of this science to the possibility of developing field crops by providing the student with theoretical and practical materials on plant genetics. • Familiarity with how to exploit this science in developing field crops • A comprehensive study of Mendel's genetic laws • Exploring the most important theories of geneticists and their role in developing this science
9. Teaching and Learning Strategies	
Strategy	- Interactive lecture -Brainstorming - Dialogue and discussion -Field Training - Practical exercises - Field project -Self-education

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	3 Theoretical	a1: Identify cells and their types	The cell and its components	Interactive lecture, brainstorming, dialogue and discussion, self-learning	Short Test 1
2	3 Theoretical	c1: Explain the methods of cellular division	Cellular division	Interactive lecture, brainstorming, dialogue and discussion, self-learning	Short Test 2 and Homework
3	3 Theoretical	b1: Explain genetic material	Genetic material	Interactive lecture, brainstorming, dialogue and discussion, self-learning	Field Project
4	3 Theoretical	a2: Identify the replication of genetic material	genetic material is replicated	Interactive lecture, brainstorming, dialogue and discussion, self-learning	Short Test 3
5	3 Theoretical	a3: Understand the chemical components of genetic material	Chemical composition of genetic material	Interactive lecture, brainstorming, dialogue and discussion, self-learning	Short Test 4 and Homework
6	3 Theoretical	c2: Explain the genetic code	Genetic code	Interactive lecture, brainstorming, dialogue and discussion, self-learning	Semester test 1
7	3 Theoretical	a4: Describe the chemical structure of a chromosome	Chemical structure of the chromosome	Interactive lecture, brainstorming, dialogue and discussion, self-learning	Homework
8	3 Theoretical	a5: Identify gene expression and protein synthesis	Gene expression and protein synthesis	Interactive lecture, brainstorming, dialogue and discussion, self-learning	Field Assessment
9	3 Theoretical	b2: Explain the concept of how gene expression is regulated in prokaryotes and eukaryotes	Regulation of gene expression in prokaryotes and eukaryotes	Interactive lecture, brainstorming, dialogue and discussion, self-learning	Homework
10	3 Theoretical	b3: Identify Genetic material outside the chromosomes	Genetic material outside the chromosomes	Interactive lecture, brainstorming, dialogue and discussion, self-learning	Field Assessment and Homework
11	3 Theoretical	b4: Identify DNA in mitochondria	DNA in mitochondria	Interactive lecture, brainstorming, dialogue and discussion, self-learning	Short Test 5

12	3 Theoretical	e1: Identify and characterize how chloroplasts are obtained	Problem solving	Interactive lecture, brainstorming, dialogue and discussion, self-learning	Report and Discussion
13	3 Theoretical	c3: Explain the types of knowledge of gene transfer	Genetic transfer	Interactive lecture, brainstorming, dialogue and discussion, self-learning	Semester test 2
14	3 Theoretical	d1: Facilitate discussion sessions to train students on gene identification methods	Report and discussion	Interactive lecture, brainstorming, dialogue and discussion, self-learning	Report and Discussion
15	3 Theoretical	a6: Identify the applications of genetic engineering	Applications genetic engineering	Interactive lecture, brainstorming, dialogue and discussion, self-learning	Short Test 6

11- Course Evaluation

Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, reports .... etc

NO.	Calendar methods	Calendar date (week)	Class	Relative weight%
1	Report 1	12	2.5	2.5
2	Report 2	14	2.5	2.5
3	Quiz (1)	1	2	2
4	Quiz (2)	2	1	1
5	Quiz (3)	4	1	1
6	Quiz (4)	5	1	1
7	Quiz (5)	11	2	2
8	Quiz (6)	15	1	1
9	Semester test 1	6	7.5	7.5
10	Semester test 2	13	7.5	7.5
11	Practical field project	3	5	5
12	Field evaluation	8	1	1
13	Field evaluation	10	1	1
14	Homework	2,5,7,9,10	5	5
15	Final theoretical test	Final semester exams	60	60
	The total	100	%100	%100

12-Learning and Teaching Resources	
Required textbooks (curricular books, if any)	A- Book: Basics of Genetics (Dr. Adnan Hassan Muhammad Al-Adhari) / Ministry of Higher Education - University of Mosul
Main references (sources)	A- Book: General Inheritance (Dr. Abdul Hussein Al-Faisal)
Recommended books and references (scientific journals, reports...)	A. Book: Genetics (Dr. Makram Diaa Shakara)
Electronic References, Websites	Nothing

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كلية الزراعة والغابات
قسم المحاصيل الحقلية

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