Course Description Form

Plant Breeding

1. Course Name:
Plant breeding
2. Course Code:
PLBR314
3. Semester / Year:
Second semester/third stage/2023-2024
4. Description Preparation Date:
1-4-2024
5. Available Attendance Forms:
My presence
6. Number of Credit Hours (Total) / Number of Units (Total)
2 theoretical hours / 3 practical hours (5 hours) / 3.5 units
7. Course administrator's name (mention all, if more than one name)
Pro.Dr. Shamil Younis Hassan AL-Hamadany **Dr. Esraa Abd-alhuseein Jasim**
8. Course Objectives

Course Objectives	• Enable the student to understand and understand plant breeding • Realizing the relationship of this science to the possibility of developing horticultural plants by providing the student with theoretical and practical materials in the field of plant breeding. • Familiarity with how to exploit this science in developing horticultural crops • A comprehensive study of most plant breeding methods • Familiarity with the information that plant breeders need and what is available to them to master the hybridization process
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	2 Theoretical	A1: Learn about education and the most important sciences related to it	Plant breeding and its purposes	Interactive lecture, brainstorming, dialogue and discussion, self-learning	Short test, final test
	3 practical	A6: Learn about the structure of the flower and its male and female parts	Flower composition	Interactive lecture, brainstorming, dialogue and discussion, field training, practical exercises, and self-learning	Short practical test1
2	2 Theoretical	C1: Explains the steps in the formation of pollen grains and female gametes	Pollination and fertilization	Interactive lecture, brainstorming, dialogue and discussion, self-learning	Final test
	3 practical	A7: Learn about plant reproductive systems	Methods of plant reproduction and their relationship to breeding	Interactive lecture, brainstorming, dialogue and discussion, field training, practical exercises, and self-learning	Viewings and homework
3	2 Theoretical	A3: Identify the most important reproductive systems in plants	Reproduction in plants	Interactive lecture, brainstorming, dialogue and discussion, self-learning	Final test
	3 practical	A8: Learn about the most important methods of breeding self-pollinating plants	Controlling plant pollination	Interactive lecture, brainstorming, dialogue and discussion, field training, practical exercises, and self-learning	Homework
4	2 Theoretical	E1: Identifying and diagnosing the types of flowers available in college fields for pollination	Solve the problem	Interactive lecture, brainstorming, dialogue and discussion, self-learning	a report
	3 practical	C6: Learn about methods of controlling pollination and the factors affecting it	Pollination contr methods	Interactive lecture, brainstorming, dialogue and discussion, field training, practical exercises, and self-learning	Short practical test 2
5	2 Theoretical	C2: distinguishes between cases of male infertility.	Male infertility	Interactive lecture, brainstorming, dialogue and discussion, self-learning	Final test
	3 practical	A9: Explains methods of artificial pollination in some vegetable crops	Methods of artificial pollination in some types of vegetables	Interactive lecture, brainstorming, dialogue and discussion, field training, practical exercises, and self-learning	Viewings and homework
6	2 Theoretical	B1: shows self-incompatibility systems	Self-incompatibility	Interactive lecture, brainstorming, dialogue and discussion, self-learning	Semester exam 1, final exam
	3 practical	A10: He is familiar with the obstacles of hybridization and ways to overcome them	Obstacles to hybridization and ways to overcome them	Interactive lecture, brainstorming, dialogue and discussion, field training, practical exercises, and self-learning	Semester exam 1, final exam
7	2 Theoretical	B3: Explain the most important factors affecting external appearance and compare genetic and	Genetic variations and their relationship to plant breeding	Interactive lecture, brainstorming, dialogue and discussion, self-learning	Final test

		environmental factors			
	3 practical	D4: Examining the vitality of pollen grains and how they germinate	Pollen vitality check	Interactive lecture, brainstorming, dialogue and discussion, field training, practical exercises, and self-learning	Viewings and homework
8	2 Theoretical	B2: Master the most important types of genetic action and its features	Important factors in determining the act of election	Interactive lecture, brainstorming, dialogue and discussion, self-learning	Final test
	3 practical	D5: Shows self-incompatibility systems	The philosophy of self-incompatibility	Interactive lecture, brainstorming, dialogue and discussion, field training, practical exercises, and self-learning	Short practical test 3
9	2 Theoretical	A2: Learn about the inheritance of a trait and its importance in selection	Estimation of some genetic parameters	Interactive lecture, brainstorming, dialogue and discussion, self-learning	Final test
	3 practical	B4: Distinguish between cases of male infertility	Male sterility and its exploitation in plant breeding	Interactive lecture, brainstorming, dialogue and discussion, field training, practical exercises, and self-learning	Viewings and homework
10	2 Theoretical	D1: Runs discussion panels to train students to present topics related to genetic improvement	Report and discuss	Interactive lecture, brainstorming, dialogue and discussion, self-learning	a report
	3 practical	A5: He is familiar with the strength of hybrids, how to produce hybrid varieties, and the problems of breeding these varieties	Hybridization and hybrid varieties	Interactive lecture, brainstorming, dialogue and discussion, field training, practical exercises, and self-learning	Viewings and homework
11	2 Theoretical	A5: Learn the most important theories of Heterosis	Heterosis	Interactive lecture, brainstorming, dialogue and discussion, self-learning	Short test, final test
	3 practical	A6: . He is familiar with the most important genetic changes and their relationship to plant breeding	Genetic changes and their relationship to plant breeding	Interactive lecture, brainstorming, dialogue and discussion, field training, practical exercises, and self-learning	Viewings and homework
12	2 Theoretical	C5: Explains the types of mutations and their benefits.	Mutation breeding	Interactive lecture, brainstorming, dialogue and discussion, self-learning	Semester exam 2, final exam
	3 practical	A6: Shows the rate of heritability and its importance in plant breeding	Heritability rate	Interactive lecture, brainstorming, dialogue and discussion, field training, practical exercises, and self-learning	Semester exam 2, final exam
13	2 Theoretical	C4: Shows the most important types of chromosomal duplication	Chromosomal duplication and its relationship to plant breeding	Interactive lecture, brainstorming, dialogue and discussion, self-learning	Final test
	3 practical	B5: Explains the types of mutations and their benefits	Creating mutations in plant breeding and	Interactive lecture, brainstorming, dialogue and discussion, field training, practical exercises, and self-	Field evaluation

			improvement	learning	
14	2 Theoretical	C3: Explains the most important types of resistance and their sources	Education for disease resistance	Interactive lecture, brainstorming, dialogue and discussion, self-learning	Short test, final test
	3 practical	C7: Field visit to the field	Solve the problem	Interactive lecture, brainstorming, dialogue and discussion, field training, practical exercises, and self-learning	Field evaluation
15	2 Theoretical	A4: Learn about the most important methods of breeding self-pollinating plants	Methods of breeding self-pollinating plants	Interactive lecture, brainstorming, dialogue and discussion, self-learning	Final test
	3 practical	C8: He conducts seminars on plant breeding topics	Report and discuss	Interactive lecture, brainstorming, dialogue and discussion, field training, practical exercises, and self-learning	Field project

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	4	2.5	2.5
2	Report 2	10	2.5	2.5
3	Quiz (1)	1	2	2
4	Quiz (2)	11	2	2
5	Quiz (3)	14	1	1
6	Semester test 1	6	7.5	7.5
7	Semester test 1	12	7.5	7.5
8	Final theoretical test	Final semester exams	40	40
9	Practical field project	15	5	5
10	Field evaluation	13,14	2	2
11	Practical Quiz 1	1	1	1
12	Practical Quiz 2	4	0.5	0.5
13	Practical Quiz 3	8	1	1
14	Homework	2,3,5,7,9,10,11	5.5	5.5
15	Final practical test	Final semester exams	20	20
	The total	100	%100	%100

12-Learning and Teaching Resources	
Required textbooks (curricular books, if any)	A- Relying on the prescribed curricula issued by Ministry. B- Relying on the curricula prepared by the subj teacher.
Main references (sources)	A- Relying on the prescribed curricula issued by Ministry. B- Relying on the curricula prepared by the subj teacher.
Recommended books and references (scientific journals, reports...)	Nothing
Electronic References, Websites	Nothing

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