

Course Description Form

Plant Breeding

1.	Course Name:
	Plant breeding
2.	Course Code:
	PLBR314
3.	Semester / Year:
	Second semester/fourth stage/2024-2025
4.	Description Preparation Date:
	1-2-2025
5.	Available Attendance Forms:
	My presence + Electronic
6.	Number of Credit Hours (Total) / Number of Units (Total)
	2 theoretical hours / 3 practical hours (5 hours) / 3.5 units - 75 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	<ul style="list-style-type: none">• 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	<ul style="list-style-type: none">- 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	b4: Examines the most important new wheat inputs	Input	Interactive lecture, brainstorming, dialogue and discussion, field training, practical exercises, and self-learning	Short practical test I
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	b5: Discover the factors affecting crop establishment	Residence - its definition and the factors affecting it	Interactive lecture, brainstorming, dialogue and discussion, field training, practical exercises, and self-learning	Viewings and homework
3	2 Theoretical	a2: Identify the most important reproductive systems in plants	Reproduction in plants	Interactive lecture, brainstorming, dialogue and discussion, self-learning	Final test
	3 practical	b6: Measures the quantitative characteristic of the outcome	Important economic traits of crop plants	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	e2: Determine the appropriate date for pollination of wheat plants	Solve the problem	Interactive lecture, brainstorming, dialogue and discussion, field training, practical exercises, and self-learning	Field evaluation
5	2 Theoretical	c2: distinguishes between cases of male infertility.	Male infertility	Interactive lecture, brainstorming, dialogue and discussion, self-learning	Final test
	3 practical	b7: Discovers the pollination process in plants	Artificial insemination	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 I, final exam
	3 practical	c6: Testing self-pollination in wheat and barley	Self-pollination in crop plants	Interactive lecture, brainstorming, dialogue and discussion, field	Semester exam I, final exam

				training, practical exercises, and self-learning	
7	2 Theoretical	b2: Explain the most important factors affecting external appearance and compare genetic and environmental factors	Genetic variations and their relationship to plant breeding	Interactive lecture, brainstorming, dialogue and discussion, self-learning	Final test
	3 practical	b8: Examines methods of inheritance	Inheritance	Interactive lecture, brainstorming, dialogue and discussion, field training, practical exercises, and self-learning	Viewings and homework
8	2 Theoretical	b3: 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	b9: Experiments with self-pollination in wheat and cross-pollination in maize	Artificial Vaccination	Interactive lecture, brainstorming, dialogue and discussion, field training, practical exercises, and self-learning	Short practical test 2
9	2 Theoretical	a3: 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	c7: Determines the average degree of dominance	degree of dominance	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	b10: Explains Selection and its importance	Selection	Interactive lecture, brainstorming, dialogue and discussion, field training, practical exercises, and self-learning	Viewings and homework
11	2 Theoretical	a4: Learn the most important theories of Heterosis	Heterosis	Interactive lecture, brainstorming, dialogue and discussion, self-learning	Short test, final test
	3 practical	c8: Distinguish the most important genetic variations between plants	The importance of genetic variations	Interactive lecture, brainstorming, dialogue and discussion, field training, practical exercises, and self-learning	Viewings and homework
12	2 Theoretical	c3: 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	b11: Trying to perform the castration process in crossbreeding in barley	Heterosis	Interactive lecture, brainstorming, dialogue and discussion, field	Semester exam 2, final exam

				training, practical exercises, and self-learning	
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	d2: Runs discussion panels to train students to present topics related to hybridization processes	Report and discuss	Interactive lecture, brainstorming, dialogue and discussion, field training, practical exercises, and self-learning	Field evaluation
14	2 Theoretical	c5: 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	b12: Explains the most important tools used in pollination	Plant breeder tools	Interactive lecture, brainstorming, dialogue and discussion, field training, practical exercises, and self-learning	Short practical test 3
15	2 Theoretical	a5: 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	c9: Decides to conduct a field inspection and use a plant breeding record	Field inspection	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	4, 13	2	2
11	Practical Quiz 1	1	1	1
12	Practical Quiz 2	8	0.5	0.5
13	Practical Quiz 3	14	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 - Book: Plant Breeding and Improvement (Dr. Medhat Majeed Al-Sahuki, Dr. Hamid Jaloub Ali, and Dr. Muhammad Ghaffar Ahmed) / Ministry of Higher Education and Scientific Research - University of Baghdad.
Main references (sources)	A- Book: Plant Breeding Methods (Dr. Ahmed Abdel Moneim Hassan) (Cairo University)
Recommended books and references (scientific journals, reports...)	A- Scientific references specialized in plant breeding and books concerned with the science of education
Electronic References, Websites	Nothing



Theoretical Lecturer

Pro.Dr. Wiam Yahya Rasheed Al-Shakarchy



Practical Lecturer

Abdullah Khder Mohammad



Chairman of the Scientific Committee

Prof.Dr. Wiam Yahya Rasheed Al-Shakarchy




Head of Field Crops Dep.

Assist.Prof.Dr. Moyassar Mohammed Aziz