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:
	1-2-2024
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 - 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	• 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	b4: Examines the most important new wheat inputs	Input	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	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 proble	Interactive lecture, brainstorming, dialogue and discussion, self-learning	a report
	3 practical	e2: Determine the appropriate date for pollination of wheat plants	Solve the proble	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 1, 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 1, 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

No.	Evaluation methods	Calendar (week)	Grade	Relative weight %
1	Theoretical final report + practical experience reports	Theoretical Week 15 Practical Week 1-15	7 Theoretical + 6 practical	13%
2	Quiz (1)	Weeks (3)	4 Theoretical + 2 practical	6%
3	Midterm Exam (theoretical and practical)	Weeks (9)	10 Theoretical + 5 practical	15%
4	Quiz (2)	Weeks (12)	4 Theoretical + 2 practical	6%
5	Final Practical Test	Practical exam week	20	20%
6	Final theoretical test	Theoretical exam week	40	40%
	Total		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. Juhina Idrees Mohammed Ali

Head the Plant Protection Department
Assist.Prof.Dr. Firas kadhim Aljuboori

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كلية الزراعة والغابات
قسم وقاية النبات