Description of the horticultural plant breeding

1. Course name
Horticultural plant breeding
PLAB310
2. Semester/Year:
First semester / 2024-2025
3. Date this description was prepared
15/1/2025
4. Available attendance forms
Attending
5. Number of study hours (total)/number of units (total):
75 hours (5 hours each week for 15 weeks)/3.5 units
6. Name of the course administrator (if more than one name is mentioned):
Mr. Dr. Aziz Mahdi Abd and Zainab Hassan Akram **azizmabd@uodiyala.edu.iq**
7. Objectives of the course
- Teaching students some genetic sciences related to plant breeding and improvement. **- Teaching students how to breed and improve the characteristics of different varieties and types of fruit plants, whether self-pollinated, cross-pollinated, or vegetatively propagated.** **- Teaching students how to raise and improve the characteristics of different varieties and types of vegetable plants, whether self-pollinated, cross-pollinated, or vegetatively propagated.** **- Teaching students how to breed and improve the characteristics of different varieties and types of ornamental plants, whether self-pollinated, cross-pollinated, or vegetatively propagated.** **- Teaching students to use genetic engineering methods to improve horticultural crops.**

- Teaching students to use some of the materials used to produce new products.
- Teaching students how to raise horticultural crops that are resistant to various diseases.
- Teaching students how to raise horticultural crops that are resistant to harsh environmental conditions.

8. Teaching and learning strategies

- Enabling students to obtain knowledge and understanding of the basics of horticultural plant breeding.
- Enabling students to obtain knowledge and understanding of methods of breeding and improving horticultural plants to obtain new genetic structures (varieties) that are suitable for the Iraqi environment.

- Enabling students to obtain knowledge and understanding of methods for transferring desired genes into commercial varieties.
- Enabling students to obtain knowledge and understanding of producing vegetable crops that are resistant to harsh environmental conditions.
- Enabling students to obtain knowledge and understanding of producing modern varieties suitable for organic agriculture to implement the concept of sustainable agriculture.

9. Course Structure			
Theoretical part			
Week	Hours	Topics Covered	Lab. Experiment Assignments
1	5	Introduction to the science of evolution Methods plant breeding science and its related specifications and .successful plant breeders	Identify the tools used in plant breeding experiments
2	5	Reproduction systems in .the plant	Life for flowering plants, horticultural
3	5	.Male infertility and types	Methods of control in the self-pollination
4	5	Lack of sexual self-compatibility and situations and means to overcome .them	Methods of insulation between plants through breeding programs
5	5	Genetic variations and their relation to breeding and .improving the plant	Methods of castration in self-pollinated plants and humoral
6	5	Inheriting qualitative and quantitative traits and genetic equivalent and some estimate genetic .parameters	Lack of sexual self-compatibility and means to overcome it
7	5	Gene duplication and the strength of the hybrid internal and horticultural plant breeding	Divide the plants according to the nature and appreciation rate of vaccination
8	5	Genetic improvement of self-pollinated plants	Mutations and their role in horticultural crop breeding

9	5	Cannot detect language. .Please choose it manually	The most important uses of replication in improving crops Bustnbh
10	5	Genetic improvement of plants humoral Vaccination	The goals and methods of breeding and improving the family Solanaceae plants - tomatoes, eggplant
11	5	Complement the genetic improvement of plants humoral Pollination	The goals and methods of breeding and improvement of Cucurbitaceae family - and pumpkins option
12	5	Methods of breeding crops .Propagated	Tarbah goals and methods and improve family Alqraeih- sophistication and watermelon
13	5	Genetic improvement of plants through genetic engineering	Breeding aims and methods improve family Alnrjsuh- onion family and pretzels – okra
14	5	Breeding and genetic improvement using mutations	The aims and methods of breeding and improvement of pomegranate
15	5	Breeding and genetic improvement to withstand pests and environmental tensile	Mutation aims and methods improve the vines

10. Learning and teaching resources

- Foundations of breeding and genetics of field crops / Dr. Hamid Jaloub Ali
- Breeding and improving plants\Dr. Medhat Majeed Al-Sahuki and others

- Raising vegetable crops\Dr. Ahmed Abdel Moneim Hassan
- Horticultural plant breeding\Dr. Ahmed Muhammad Abu Zaid Akl and others
- Basics of plant breeding rules\Dr. Ali Al-Khashin
- Basics of plant breeding\Dr. Ahmed Abdel Moneim Hassan
- An electronic website concerned with plant breeding and improvement