The Hebrew University of Jerusalem

Syllabus

PRINCIPLES OF SEED PRODUCTION - 73923

Last update 07-11-2024

HU Credits: 2

Degree/Cycle: 2nd degree (Master)

Responsible Department: Field and Vegetable Crops-International Prog.

Academic year: 0

Semester: 2nd Semester

Teaching Languages: English

Campus: Rehovot

Course/Module Coordinator: Dr. Etan Pressman

Coordinator Email: pressmanetan@gmail.com

Coordinator Office Hours: By appointment

Teaching Staff:

Dr. Einav Mayzlish Gati,
Dr. Etan Pressman

Course/Module description:

Students will learn the basic principles of seed production. The first part of the course will deal with flowering, pollination, fertilization, seed development and maturation, and with seed germination. The role of plant hormones, genetic and environmental factors in these processes will be discussed. Self incompatibility mechanisms and nuclear embryos formation and utilization will be studied.
The second part of the course will focus on hybrid seed production, breeding and certification scheme, seed quality, crop performance and varietal purity. Finally, the application of these processes for practical seed testing and production will be demonstrated in Volcani Center and a field trip.

Course/Module aims:

• To provide a wide knowledge about seed production processes, including: seed development and ripening, germination and dormancy, seed quality and crop performance.
• To provide knowledge on the theoretical and practical aspects of elite varieties production, as well as varietal purity maintenance and management.
• Teach techniques and technologies for improving seed quality.

Learning outcomes - On successful completion of this module, students should be able to:

• Understand basic principles of seed production, from flowering to germination and storage.
• Know and understand the various factors involved in seed production and germination.
• Understand the principles of seed propagation and breeding.
• Know how to maintain varietal purity, hybrid seed production and management.
• Understand the effects of seed quality on germination potential and storage ability.
• Understand the major factors affecting seed processing: seed sorting, treatments and priming.

Attendance requirements(%):

90%

Teaching arrangement and method of instruction: Frontal lectures and two field-

trips will be held to Volcani Center and to a seed company.

Course/Module Content:

1. Introduction to seed production.
2. Flower induction.
3. Gamete development and embryo development.
4. Pollination, fertilization and seed development.
5. Seed germination and dormancy.
6. Hybrid seed production.
7. Seed vigor, seed treatments, GMO, seed quality and crop performance.
8. Seed quality testing and varietal purity.
9. Hybrid vegetable seed production, development and release of public and private varieties- guest lecture.
10. Seed storage and deterioration, seed legislation and certification, seed companies.

Required Reading:

Will be mentioned throughout the lectures.
Two field trips:
1. The volcani Center
2. Hazera seed compeny
Optional 3rd trip to Hishtil nursereis

Additional Reading Material:

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Grading Scheme:

Written Exam % 100

Additional information:

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