



The Hebrew University of Jerusalem

Syllabus

PRINCIPLES OF SEED PRODUCTION - 71338

Last update 10-04-2024

HU Credits: 3.5

Degree/Cycle: 1st degree (Bachelor)

Responsible Department: Plant Science in Agriculture

Academic year: 0

Semester: 2nd Semester

Teaching Languages: Hebrew

Campus: Rehovot

Course/Module Coordinator: Dr. Doron Shkolnik

Coordinator Email: doron.shkolnik@mail.huji.ac.il

Coordinator Office Hours: by appointment

Teaching Staff:

Dr. Doron Shkolnik,
Ms. shaked azoulay

Course/Module description:

The goal of this course is to get acquainted with the world of seed production. In the framework of this course we will cover the biology of seed production from the development of the gametes to seed maturation. We will study the effect of environmental factors on sexual reproduction and seed development, the production of hybrid seeds and the legal aspects related to seed production and trade. In addition we will learn what are the parameters defining seed quality and the factors affecting this parameter. Visits are planned in several departments of seed companies.

Course/Module aims:

The goal of this course is to get acquainted with the world of seed production.

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

- * perform methods for the production of seeds
- * Understand the parameters required for the production and improvement of seeds
- * Involvement with legal aspects related to the existence and multiplicity of seeds
- * Exposure to commercial companies of seeds breederers
- * Ability to integrate research and development in seeds.

Attendance requirements(%):

80

Teaching arrangement and method of instruction: Lectures, laboratory and field trips

Distance learning.

Course/Module Content:

- Introduction; National and international aspects of seed production
- Developments of gametes, fertilization and embryo development
- Sexual reproduction
- Hybrid seed production
- Legal aspects of seed production
- Seed maturation
- Seed treatments

Required Reading:

Basra, A.S. 1995. *Seed Quality. Basic Mechanisms and Agricultural Implications*. Food Products Press, New York, London, Norwood. 631.521/SEE

Bewley, J.D. and M. Black 1994. *Seeds: Physiology of Development and Germination*. Plenum Press, New York. 581.333/BEW

Copeland, L.O. and M.B. McDonald 1985. *Principles of Seed Science and Technology*. Macmillan Publishing Company, New York. 631.521/COP

- The book covers the principles and practices involved in producing, conditioning, evaluating and marketing high quality seeds.

Desai, B.B., P.M. Kotecha and D.K. Salunkhe 1997. *Seeds Handbook. Biology, Production, Processing, and Storage*. Marcel Dekker, New York, Basel, Hong Kong. 631.521/DES

Egli, D.B. 1998. *Seed Biology and the Yield of Grain Crops*. CAB International, Wallingford.

Fahn, A. 1990. *Plant Anatomy*. Pergamon Press, Oxford. 581.4/FAH

Feistritzer, W.P. 1978. *Improved Seed Production*. Food and Agricultural Organization of the United Nations, Rome. 631.521/FOO

- Seed programs, with emphasis on international programs.

Frankel, R. and E. Galun 1977. *Pollination Mechanisms, Reproduction and Plant Breeding*. Springer-Verlag, Berlin. 581.166.2/FRA

- Excellent source of detailed information on reproductive biology, pollination and hybridization techniques.

George, R.A.T. 1985. *Vegetable Seed Production*. John Wiley, London. 635.042/GEO

Kigel, H. and G. Galili 1995. *Seed Development and Germination*. Marcel Dekker, New York, Basel, Hong Kong. 581.333/SEE

McDonald, M.B. and L.O. Copeland 1997. *Seed Production: Principles and Practices*. Chapman & Hall, NY. 631.521/MCD

Additional Reading Material:

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Grading Scheme:

Written / Oral / Practical Exam 100 %

Additional information:

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