

# The Hebrew University of Jerusalem

Syllabus

## PHYSIOLOGY OF CROP PRODUCTION - 71305

*Last update 08-01-2015* 

<u>HU Credits:</u> 3.5

Degree/Cycle: 1st degree (Bachelor)

<u>Responsible Department:</u> Plant Sciences in Agriculture

<u>Academic year:</u> 3

Semester: 2nd Semester

<u>Teaching Languages:</u> Hebrew

<u>Campus:</u> Rehovot

Course/Module Coordinator: Prof. Shmuel Wolf

Coordinator Email: shmulik.wolf@mail.huji.ac.il

Coordinator Office Hours: by appointment

Teaching Staff:

Prof Shmuel Wolf Noga Glanz

#### Course/Module description:

study the physiological processes determining the productivity and yield of annual crops. We will study the effect of environmental factors on plant developmental rate, the effect of solar radiation on various biological processes including the potential productivity of single plant and source-sink relationships. A special emphasis will be given to the productivity of plant community and the partitioning of photoassimilates among the various plant organs. We will analyze the effect of environmental factors on yield accumulation under field conditions.

#### Course/Module aims:

The goal of this course is to study the physiological processed determining the productivity and final yield of annual crops.

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

Analyze the course of agricultural production in the open field or in greenhouses. Familiar with factors may interfere with the development of the crop. Plan the growth of the crop considering dry matter accumulation Gain experience and understanding about the effects of the farmer on the crop

<u>Attendance requirements(%):</u>

80%

Teaching arrangement and method of instruction: Lectures and research laboratory

### Course/Module Content:

- Introduction
- Germination and emergence
- Radiation and photomorphogenesis
- Photosynthesis and respiration.
- Phenology
- Growth analysis
- Factors affecting the allocation of photoassimilates to the various plant organs.
- Source-sink relationships

Required Reading:

Boote, K.J., Bennett, J.M., Sinclair, T.R. and Paulson, G.M. 1994. Physiology and Determination of Crop Yield. American Societ of Agronomy, Madison, Wisconsin, USA.

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

Gardner, F.P., Pearce, R.B and Mitchell, R.L. 1985. Physiology of Crop Plants. Iowa State University Press, Ames, Iowa.

Hay, R.K. and Walker, A.J. 1989. An Introduction to the Physiology of Crop Yield. Longman Scientific & Technical, Essex, England.

*Jones, H.G. 1986. Plants and Microclimate. A Quantitative Approach to Environmental Plant Physiology. Cambridge University Press, Cambridge.* 

*Pessarakli, M. 1994. Handbook of Plant and Crop Physiology. Marcell Dekker, New York.* 

*Tesar, M.B. 1984. Physiological Basis of Crop Growth and Development. American Society of Agronomy and Crop Science Society of America, Madison, Wisconsin.* 

Additional Reading Material:

<u>Course/Module evaluation:</u> End of year written/oral examination 60 % Presentation 0 % Participation in Tutorials 0 % Project work 0 % Assignments 0 % Reports 20 % Research project 0 % Quizzes 20 % Other 0 %

Additional information: