



The Hebrew University of Jerusalem

The Robert H. Smith Faculty of Agriculture, Food & Environment
The International School of Agricultural Sciences

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Program Requirements and Course Descriptions

Summer Program
July 10-August 11, 2017





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Admission Requirements

- B.Sc. degree holders or third-year students in agriculture, soil and water sciences, plant sciences, biology or related fields from a recognized academic institution.
- GPA of 75 or higher (B on the American scale).
- A high level of proficiency in all English skills, either:
 - At least 89 on the TOEFL internet-based test.
 - At least 6.7 on the IELTS.
 - Or documentation of previous academic studies conducted in English.
- A copy of curriculum vitae (CV)
- Agricultural experience (recommended but not compulsory).

***Second-year students may be considered depending on their academic record and experience.**

Course Description

#	COURSE	INSTRUCTOR	CREDITS
71930	Effluents – Reclamation, irrigation and environmental implication	Dr. Jorge Tarchitzky	3
71113	Effects of biotic and abiotic stresses on agricultural crops	Prof Yehoshua Saranga Prof Shahal Abbo	2

Effluents – Reclamation, irrigation and environmental implication – 3 credits

Agricultural and environmental aspects of reclaiming waste water, characteristics and use for crop irrigation: waste water sources and treatment; water quality parameters; methods of treatment; health, logistic and regulatory aspects; effect of treated waste water quality on soils and crops; technological aspects of the use of treated waste water; future directions in waste water characteristics and implications of its use and impact on agriculture and the environment.

Course Code: 71930

Cycle: 2nd cycle

Responsible Department: Soil and Water Sciences

Academic Year: 2015-16

Semester: Summer program

Contact Hours: 42

HU Credits: 3

Location of Instruction: Smith Faculty



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Lecturer Coordinator and email: Dr. Jorge Tarchitzky jorge.tarchitz@mail.huji.ac.il

Teaching Staff: Dr. Jorge Tarchitzky

Office Hours: By appointment

Module Description: Students will learn about Agricultural and environmental aspects of irrigation with treated waste water: waste water sources and treatment; water quality parameters; methods of treatment; health, organizational and regulatory aspects; the effect of treated waste water quality on soils and crops; technological aspects of the use of treated waste water; trends in waste water characteristics and the implications of its use and impact on agriculture and the environment.

Attendance: Obligatory (100%)

Teaching arrangements and method of instruction: Lectures.

Required reading/literature: None

Module Evaluation: Written Assignment –

End of year written/oral examination 80 %

Presentation 10 %

Assignments 10 %

Additional Information: None

Effects of biotic and abiotic stresses on agricultural crops – 2 credits

Biotic and abiotic (drought, temperature, salinity, radiation) factors that stress plants in general, and vegetable and field crops in particular; approaches for mitigating adverse effects of such stresses; the genetic, physiological and biochemical processes that underlie plant response to stress factors; crop resistance to various stress factors and agronomic approaches for optimal agricultural productivity under stress conditions. Discussion of case studies concerning soil salinity, drought stress, insect damage.

Course Code: 71113

Cycle: 2nd cycle

Responsible Department: Plant Science

Academic Year: 2014-15

Semester: Summer program

Contact Hours: 28

HU Credits: 2

Location of Instruction: Smith Faculty

Lecturer Coordinator and email:

Teaching Staff: Prof Yehoshua Saranga Prof Shahal Abbo

Office Hours: By appointment



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General Prerequisites: Advanced courses in Genetics and Genetic engineering

Module Description:

Students will be exposed to the latest discoveries published in the professional literatures. Students will work as a group and discussions will take place as a round table. They will review and evaluate the current journals in the field of plant science. Students will critically analyze papers considered as break-through in a specific area. They will discuss the experiments described, the methods and the conclusions.

Aims: Course aims: Gaining tools to quantify and analyze the effect of a-biotic (salt, drought, temp) and biotic (pests and diseases) on crop plants. Introduction to the system of agronomic and genetic considerations that can and need be implemented in order to accommodate stress situation in crop production.

Attendance: Obligatory (100%).

Teaching arrangements and method of instruction: Lectures, self-reading, field trip, class discussions

Module Content:

- 1 Introduction, stress effects on crop plants
- 2 Genomic stress
- 3 Drought stress
- 4 Grain production in semi-arid systems
- 5 Drought response of wild wheat: ecology, physiology, genetics
- 6 Adaptation of cotton to semi-arid regions page 2 / 3
- 7 Manipulating the plant hormone system as a way to accommodate drought stress
- 8 Plant response to ion toxicity
- 9 Ion transport through the cell membranes under stress
- 10 Improving plant resistance to salinity
- 11 Plant response to biotic stress
- 12 Genetic tools to improve grain production in semi-arid systems
- 13 Basic concepts in plant breeding to stress conditions Prof Abraham Blum
- 14 Concluding discussion

Required reading/literature: Mentioned throughout the lectures.

Module Evaluation: End of year written/oral examination 95 % Presentation Other 5 %

Additional Information: None

Program Costs:

Students receiving scholarship

Estimated Cost in New Israeli Shekels	
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4,000 (NIS)	Estimated personal expenses (food, travel on weekends etc. for the entire program)
Cost of airfare	Travel

Student not receiving scholarship

Estimated Cost in New Israeli Shekels	
10,000	Tuition, study tours and housing
4,000	Estimated personal expenses (food, travel on weekends etc. for the entire program)
Cost of airfare	Travel
200	Health insurance