



The Hebrew University of Jerusalem

Syllabus

Principles of Virology - 71510

Last update 05-11-2024

HU Credits: 2

Degree/Cycle: 1st degree (Bachelor)

Responsible Department: Agroecology & Plant Health

Academic year: 0

Semester: 2nd Semester

Teaching Languages: Hebrew

Campus: Rehovot

Course/Module Coordinator: Dr. Munir Mawassi

Coordinator Email: mawassi@volcani.agri.gov.il

Coordinator Office Hours: by appointment

Teaching Staff:

Dr. Munir Mawassi,
Dr. Aviv Dombrovsky

Course/Module description:

The course is aimed to introduce the student to the Virology word. Describing what is a virus. It deals with classification of viruses and tools to study viruses. It addresses viral infections focusing on viral entry and modes of replication of animal and plant viruses as well as pathology associated with them, including oncoviruses. It visits Viroids and satellite RNAs as agents of plant disease. Finally it allows a glimpse on the use of viruses as vectors of gene expression in human health and agriculture.

Course/Module aims:

The aim of the course is to provide the basis to understand the biology of plant and animal viruses.

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

At the end of the course the student will have the basic knowledge about classification of viruses, basic mechanisms of viral infection and replication, diagnostic and research tools applied in virology.

Attendance requirements(%):

70

Teaching arrangement and method of instruction: Frontal teaching.

Course/Module Content:

- plant viruses introduction, structure, genome structure, families and groups
- viruses replication methods and reproduction in plants
- animal viruses introduction, infection and classification
- culture and identification of viruses
- viral receptors and cell invasion
- animal RNA viruses, replication, transcription, RNA processing and polyadenylation.
- capping, recombinations, genetic variability, defective RNA
- retroviruses, viral induced transformation and oncogenesis
- plant virus movement, virus transmission by vectors
- replication of

animal DNA viruses.

-translation of viral RNA

- assembly of viral particles

-cell to cell movement of animal viruses

-molecular biology of closteroviruses

- RNA silencing in virus-infeted plants

-Pathogenesis induced by animal viruses, immunity.

-Animal viruses as vectors

Required Reading:

None

Additional Reading Material:

1) Mathews' Plant Virology' Roger Hull, Fourth Edition.

2) Principles of Plant Virology- Genome, Pathogenicity, Virus Ecology.

S. Astiet, J. Albouy, Y. Maury, C. Robaglia, H. Lecoq. 2007.

3) Principles of Virology, S. Flint, L.W Enquist, V. R. Racaniello, A.M. Salka. ASM Press 2004 Washington DC, USA

Grading Scheme:

Written Exam % 100

Additional information:

none