The Hebrew University of Jerusalem

Syllabus

Microbiology - 94619

Last update 23-12-2024

HU Credits: 3

Degree/Cycle: 1st degree (Bachelor)

Responsible Department: Bio-Medical Sciences

Academic year: 0

Semester: 1st Semester

Teaching Languages: Hebrew

Campus: Ein Karem

Course/Module Coordinator: Sahar Melamed

Coordinator Email: sahar.melamed@mail.huji.ac.il

Coordinator Office Hours: by email appointment

Teaching Staff:

Prof. Alon Warburg,
Dr. Sahar Melamed,
Dr. Yiska Weisblum,
Dr. Anat Florentin

Course/Module description:

Introduction to clinical microbiology. The students will become familiar with microorganisms pathogenic in humans, their taxonomic status, their biology and interactions with the human host, the diseases resulting from infection and medical treatment.

Course/Module aims:

1. Become familiar with basic terms in clinical microbiology
2. Introduction to the different groups of pathogenic microorganisms
3. To study of host [human] - pathogen interactions
4. Virulence mechanisms in bacteria and viruses
5. Biochemical [metabolic] pathways as bases for the development of effective drugs

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

Acquire the terminology and basic understanding of microbiology

Knowledge of the pathogenic microorganisms and the human diseases caused by infections

Attendance requirements(%):

none

Teaching arrangement and method of instruction: Frontal lectures with PPT presentations and video clips (there may be changes in accordance with HUJI directives)

Course/Module Content:

1. Introduction to bacteria. Characteristics of prokaryotic and eukaryotic cells/
2. Anatomy, morphology and physiology of bacterial cells
3. Antibiotics, DNA transcription and translation
4. Archea, halophylic bacteria. Phylogenetics of bacteria
5. Viruses -Introduction
6. Interactions with the host cell. Invasion of host cells

7. Positive RNA viruses: picorna, Polio virus
8. Negative RNA viruses: rabies, influenza
9. Epidemiology of influenza. Life cycle of retroviruses
10. Cancer-causing viruses
11. Retroviruses and AIDS
12. Introduction to eukaryotic parasites
13. Leishmaniasis the diseases. Leishmaniasis in Israel.
14. Trypanosomiasis: Sleeping sickness / Chagas diseases
15. Malaria life cycle of Plasmodium spp
16.Round Worms Lymphatic filariasis and onchocerciasis
17. Flat Worms / Schistosomiasis
18. Cestodes
17. Parasitic arthropods a svectors of human diseases

Required Reading:
None

Additional Reading Material:
Brock Biology of Microorganims (Madigan, Martinko & Parker)

Fundamental Bacterial Genetics (Trun & Trempy)

Grading Scheme:
Written / Oral / Practical Exam 100 %

Additional information:
More details to be found in the course website in HUJI/Moodle (open to registered students and teachers)