Name of the module: Clinical Microbiology and Mycology
Number of module: 471-8-2009&471-8-2019

Course Description: A combination of frontal lectures and laboratory tutorials sessions that teach the fundamentals of Microbiology, mycology and clinical microbiology in theory and practice.

Aims of the module: The purpose of the module is to expose the students to the world of microbiology and infectious disease.

Objectives of the module: each student will:
1. Study the basic principles of bacterial growth, metabolism and genetics
2. Study the properties of various groups of pathogens (bacteria and fungi) that cause diseases in human and animals.
3. Study the various mechanisms by which bacteria and fungi cause diseases.

Learning outcomes of the module: On successful completion of the course, the student should be able to:

1. Recount the basic principles of microbiology, including classification and taxonomy, microbial physiology and genetics, control of microorganisms through the use of physical and chemical agents, antibiotics, host-parasite relationships, and epidemiological concepts. Bacterial and fungal infectious organisms are all represented in this series.
2. Discuss the ways in which bacteria and fungi cause disease in human and animals, antibiotic treatment, the problem of antibiotic resistance and the mechanism that are involved in this resistance.
3. Perform basic laboratory assays for the identification of a pathogen in a given disease.
4. Attendance regulation: Laboratory training and laboratory assignments are mandatory.

Teaching arrangement and method of instruction: An integrated set of frontal lectures in a classroom setting, laboratory training and laboratory assignments should be submitted by the students.
Assessment:

1. Final exam, 80%
2. Lab. Exam + Lab. assignments 20%

100%

Work and assignments: Students are briefed on the course work, including laboratory assignments, at the beginning of the year.

Time required for individual work: Reading, lab-related work, and material review is estimated requiring 3 to 4 hours/week.
The time spent (hours) on each of the topics (frontal lectures only), in the order shown, is as follows:

Teaching unit: Topics (hrs)

Semester I
1. Introduction- Bacterial taxonomy, Bacterial morphology and cell wall structure (2)
2. Bacterial metabolism, growth and nutrition (2)
3. Bacterial genetics (2)
4. Antibacterial agents (2)
5. Antibiotic resistance (2)
6. Staphylococcus (4)
7. Meningococcus, gonococcus (2)
8. Haemophilus, Bordetella (2)
9. Molecular epidemiology (2)
10. Pneumococcus (2)
11. Streptococcus (4)
12. Listeria (2)
13. Mycology (8)
14. Infections in immunodeficiency patients

Semester II
1. Enterobacteriacea, vibronacea, campylobacter, helicobacter (6)
2. Spirochaetaceae (Borrelia, Leptospira) (2)
3. Non-fermentative gram (-) bacteria (2)
4. Mycoplasma (2)
5. Legionella (2)
6. Brucella (2)
7. Rickettsia (2)
8. Anerobic gram (+) bacilli (4)
9. Diagnostic methods in infectious diseases (4)
10. Host-parasite relationship (2)
11. Pathogen and bioterror (anthrax, tularemia) (2)
12. Chlamydia (2)
13. Mycobacterium (4)
14. Case reports discussion (4)

Laboratory training: The laboratory program is constructed around two experimental challenges; 1. Methods for isolation of bacteria from clinical specimen 2. Methods for the identification of the infectious agent (Staphylococcus, streptococcus, enterobacteriacea, mycoplasma).

Reading: 1. Medical microbiology, Murray et al, fourth edition

* All learning material will be available to the students on the module's website (high-learn)/library/electronic documents available to BGU students.