

English Degree Course in Medicine and Surgery (2Y 1S) - BEMC

Microbiology and Clinical microbiology Syllabus 2022/2023

The microbial world: bacteria, viruses and fungi
Elements of microbiological taxonomy
Bacterial cell structures and their functions
Metabolism and cultivation of bacteria
Bacterial reproduction and bacterial spores
Basics of bacterial genetics (mutations, genetic recombination)
Antibacterial drugs and their mechanism of action
The antibiotic resistance. Sensitivity tests
Virus Classification and Structures
The infectious cycle: Attachment, entry, replication and assembly
Virus-host interactions
Antiviral Drugs
Prions
Fungi: main features and cultivation
Pathogenesis of mycoses.
Relationships between microorganisms and host. Natural defenses of the organism. Immune response and survival strategy of infectious agents.
Transmission, diffusion and replication of microorganisms. Persistent infections.
Clinical manifestations and diagnosis of infections of individual body areas.
Prevention of infections and infectious diseases.
Chemical and physical agents for the control of microorganisms.
Anti-infective chemotherapy.
Serological and molecular diagnostics.
Vaccines and sera.

Systematic bacteriology:

Staphylococci (*Staphylococcus aureus*, coagulase negative staphylococci and micrococci), Streptococci and enterococci, Pneumococci, *Bacillus anthracis* and *Bacillus cereus*, *Corynebacterium diphtheriae*, *Listeria monocytogenes*, *Gardnerella vaginalis*, Actinomycetes (*Neisseria meningitidis*, *Neisseria gonorrhoeae*, *Moraxella*), Mycobacteria (*Mycobacterium tuberculosis*, *Mycobacterium leprae*) and MOTT (Mycobacteria other than tuberculosis), Enterobacteria (*E. coli*, *Salmonella*, *Shigella*, *Klebsiella*, *Citrobacter*, *Enterobacter*, *Serratia*, *Proteus* and *Yersinia*), *Vibrio cholerae*, *Aeromonas*,

Spirilli, Campylobacter, Helicobacter pylori, Pasteurella, Brucella, Haemophilus spp, *Bordetella (Bordetella pertussis), Pseudomonas aeruginosa, Acinetobacter, Alcaligenes, Flavobacterium. Actynobacillus, Legionella (Legionella pneumophila), Clostridia (Clostridium tetani, Clostridium botulinum, Clostridium perfringens, Clostridioides difficile), Spirochetes (Treponema pallidum, Borrelia and Leptospira), Bartonella* spp, *Rickettsia* spp, *Ehrlichia* spp, *Chlamydia (Chlamydia trachomatis, Chlamydia psittaci, Chlamydophila pneumoniae)* and *Mycoplasma* spp.

Systematic virology:

DNA viruses: Papovaviridae, Herpesviridae, Adenoviridae, Parvoviridae, Poxviridae, Hepadnaviridae.

RNA viruses: Picornaviridae, Coronaviridae, Orthomyxoviridae, Paramyxoviridae, Rabdoviridae, Filoviridae, Hepatitis viruses, Reoviridae and enteric viruses, Togaviridae, Flaviviridae, Retroviridae.

Systematic mycology:

Dermatophytes, *Malessezia furfur, Candida* spp, *Cryptococcus neoformans, Nocardia* spp., Aspergilli

General aspects on parasites and vectors and their interactions with hosts

Parasites and parasitism. Elements of taxonomy. Morphological and physiological characteristics of protozoa, helminths and arthropods. Host/parasite relationship. Direct and indirect biological life cycles. Epidemiological role played by vectors in the spread of parasites to humans. Zoonoses.

Protozoa

Apicomplexa: *Toxoplasma gondii, Cryptosporidium* spp., *Sarcocystis* spp., *Isospora* spp., *Cyclospora* spp. and *Plasmodium* spp. Sarcocystophora: *Giardia* spp., *Trichomonas* spp., *Trypanosoma* spp., *Leishmania* spp., *Entamoeba* spp., *Dientamoeba* spp. and *Naegleria* spp. Ciliophora: *Balantidium* spp.

Suggested textbooks

- Patrick Murray, Ken S. Rosenthal, and Michael A. Pfaller. Medical Microbiology, 9th Edition, 2020. Elsevier
- Murray P. Basic Medical Microbiology, 1st Edition, 2017. Elsevier (2nd edition expected availability date: 03-15-2023)
- Struthers J.K., Clinical Microbiology, 2nd Edition, 2017 CRC Press

- Burton Bogitsh, Clint Carter and Thomas Oeltmann, Human Parasitology, 5th Edition, Elsevier, 2018

Any other textbook of medical microbiology may be considered, if recent

Examination methods: written test.

Exams' schedule and board are available on Esse3