

Course Name : Medical Microbiology	اسم المقرر: الأحياء الدقيقة الطبيه
Course Code & No : MAC 221	رقم المقرر ورمزه: ماك 221
Credits : 6 (4+2)	الساعات المعتمده: 6 (2+4)
Study year: 2 nd year	سنة الدراسة: الثانيه

4 = Theoretical

2 = Laboratory practicals and tutorials

Revised by: Microbiology/Dept. of Pathology, Course Development Committee:

Name	Title	Position
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1- **Introduction and Course Description**

This course provides the medical student with the basic knowledge and practical skills in medical microbiology. This includes an introduction to the basic biology of micro-organisms of medical importance. Interaction of these micro-organisms with humans is studied as related to the pathogenesis and management and control of infectious diseases. We hope that you will find this attachment useful and enjoyable. To achieve the maximum benefit of this course; hard work and appropriate methods of learning are the keys for that target.

2- **Prerequisites & Intended Students**

This course is intended to students in the second year with the prerequisite of successfully completion of the first year, College of Medicine courses.

3- **Course Aims and Objectives:**

By end of the course the medical student should have:

- 3.1. Biological nature and diversity of microorganisms
- 3.2. Bacterial, Viral, Parasitic and Fungal host-parasite relationship.
- 3.3. Pathogenesis and clinical features.
- 3.4. Epidemiological feature of infectious diseases.
- 3.5. Proper use of clinical laboratory.
- 3.6. Specimen collection.
- 3.7. Request and interpretation of laboratory tests.
- 3.8. Judicious selection of antimicrobial agents.
- 3.9. Use and monitoring of antimicrobial therapy.
- 3.10. Use of Vaccine.

4- Course Contents

4.1. Summary of Course Contents

Bacteriology, Virology, Mycology and Parasitology.

4.1.1. Bacteria, and human diseases caused by bacteria.

4.1.2. Basic mycology and some fungal infections

4.1.3. Human parasitic infections.

4.1.4. Human Viral infections.

4.2 Details of Content

4.2.1 Bacteriology

4.2.2.1. Lectures

4.2.2.1.1. Introduction to the course

4.2.2.1.2. Bacterial morphology

4.2.2.1.3. Bacterial physiology

4.2.2.1.4. Fungal structure and pathogenesis

4.2.2.1.5. Bacterial culture media.

4.2.2.1.6. Bacterial genetics

4.2.2.1.7. Normal flora, host parasite relationship and pathogenicity

4.2.2.1.8. Antibodies (General principles)

4.2.2.1.9. Sterilization and disinfection

4.2.2.1.10. Staphylococcal infections

4.2.2.1.11. Bhaemolytic streptococci

4.2.2.1.12. α haemolytic streptococci

4.2.2.1.13. Streptococcus pneumial α enterococci.

4.2.2.1.14. Mycobacterial infection

4.2.2.1.15. Non-tuberculous mycobacteria.

4.2.2.1.16. Corynebacteria and Listeria

4.2.2.1.17. Haemophilus and Bordetella

4.2.2.1.10. Antibiotics

4.2.2.1.20. Enteropathogens (E.coli, Yersinia)

4.2.2.1.12. Bacterial genetics

4.2.2.1.13. Rickettsial infections

- 4.2.2.1.24. Shigella, bacillary dysentery and food poisoning.
- 4.2.2.1.21. Gram negative infection (Pseudomonas, Klebsiella, Proteus)
- 4.2.2.1.22. Salmonella
- 4.2.2.1.23. Antibiotics (clinical use)
- 4.2.2.1.25. Cholera, Campylobacter, Helicobacter pylori
- 4.2.2.1.18. G.I.T. infection and food poisoning
- 4.2.2.1.26. Meningococcal infections
- 4.2.2.1.27. Gonorrhoea
- 4.2.2.1.18. Anaerobic infection I: Tetanus and gas Gangrene
- 4.2.2.1.19. Anaerobic infectionII: Non-sporing anaerobes
- 4.2.2.1.28. Spirocheales, syphilis
- 4.2.2.1.29. Chlamydial infections
- 4.2.2.1.30. Mycoplasmas
- 4.2.2.1.31. Puox brucellosis
- 4.2.2.1.31. Anthrax and plaque
- 4.2.2.1.32. Leptospirosis

4.2.2.2. Practical/ Tutorials

- 4.2.2.2.1. Bacterial Morphology, Microscopy, Staining
- 4.2.2.2.2. Culture media
- 4.2.2.2.3. Sterilization, Disinfection and antibiotics.
- 4.2.2.2.4. Staphylococcal α streptococci
- 4.2.2.2.5. Mycobacteria α corynebacteria.
- 4.2.2.2.6. Corynebacteria, Haemophilus and anaerobes.
- 4.2.2.2.7. Enterobacteriamia, vibrios, campylobacter
- 4.2.2.2.8. Neisseria, syphilis and chlamydia
- 4.2.2.2.9. Respiratory tract infection
- 4.2.2.2.10. Gastroenteritis.
- 4.2.2.2.11. Urogenital infection.
- 4.2.2.2.12. Sexually transmitted infection

4.2.3. Parasitology

4.2.3.1. Lectures

- 4.2.3.1.1. Introduction to Parasitology
- 4.2.3.1.2. Fascioliasis and Schistosomiasis I
- 4.2.3.1.3. Schistosomiasis II
- 4.2.3.1.4. Entomology
- 4.2.3.1.5. Malaria I
- 4.2.3.1.6. Malaria II
- 4.2.3.1.7. Taeniasis, Cysticercosis and Hymenolepis Nana Infection
- 4.2.3.1.8. Hydatid disease
- 4.2.3.1.9. Ascariasis and Enterobiasis
- 4.2.3.1.10. Hookworm, Trichuriasis and Strongyloidiasis
- 4.2.3.1.11. Amoebiasis and Giardiasis
- 4.2.3.1.12. Leishmaniasis
- 4.2.3.1.13. Trypanosomiasis
- 4.2.3.1.14. Onchocerciasis and Bancroftian Filariasis
- 4.2.3.1.15. Toxoplasmosis.
- 4.2.4.1.16. Cryptosporidiosis.

4.2.3.2. Practical / Tutorials

- 4.2.3.2.1 Trematodes
- 4.2.3.2.2. Entomology I
- 4.2.3.2.3. Entomology II
- 4.2.3.2.4. Malaria
- 4.2.3.2.5. Cestodes
- 4.2.3.2.6. Intestinal Nematodes
- 4.2.3.2.7. Intestinal Protozoa
- 4.2.3.2.8. Tissue Nematodes
- 4.2.3.2.9. Tissue Protozoa

4.2.4. Mycology

4.2.4.1. Lectures

- 4.2.4.1.1. Fungal structure, reproduction and pathogenicity
- 4.2.4.1.2. Dermatophytoses and superficial mycoses.
- 4.2.4.1.3. Mycetoma, Rhinosporidiosis.
- 4.2.4.1.4. Zygomycosis and subcutaneous mycoses.
- 4.2.4.1.5. Aspergillosis, Pneumocystosis
- 4.2.4.1.6. Candidosis and other yeast infections.
- 4.2.4.1.7. Primary systemic mycoses

4.2.4.2. Practicals

- 4.2.4.2.1. Fungal structure, Morphology, culture techniques, fungal media, fungal mounts and stains. Representatives of molds and yeasts.
- 4.2.4.2.2. Diagnosis of fungal infections in clinical specimens and in culture; Pit versicolor, Dermatophytoses, Mycetoma.
- 4.2.4.2.3. Diagnostic procedures for zygomycosis, Aspergillosis, candidosis, and other yeast infections.

4.2.5. Virology

4.2.5.1. Lectures

- 4.5.1.1.1. Structure and classification
- 4.5.1.1.2. Pathogenesis of viral infection
- 4.5.1.1.3. Enteroviruses
- 4.5.1.1.4. Viral infection of the upper RT.
- 4.5.1.1.5. Viral infection of the lower RT.
- 4.5.1.1.6. Gastroenteritis and enterically transmitted hepatitis.
- 4.5.1.1.7. Viral infection of the skin & mucous membrane (1)
- 4.5.1.1.8. Viral infection of the skin & mucous membrane (2)
- 4.5.1.1.9. Mumps, EBV & CMV.
- 4.5.1.1.10. Hepatitis B & C.
- 4.5.1.1.11. HIV.
- 4.5.1.1.12. Zoonotic viral diseases.
- 4.5.1.1.13. Anti-viral drug

4.2.5.2. Practicals :

4.2.5.2 Practicals

4.2.5.2.1. Structure and classification of viruses

4.2.5.2.2. Pathogenesis of viruses

4.2.5.2.3. Serological techniques in virology

5- **Students Assessment & Evaluation:**

Students will be evaluated as follows:

- 1: Three Continuous assessment test (MCQ): **15+25+10 points =50**
- 2: Two Practical Examinations: 10+10 points =**20**
- 3: A final written examination (MCQ): **30 points**

6- **Resources:**

References & Recommended textbooks:

- 6.1. **Medical Microbiology & Introduction to Infectious Diseases.**
John C. Sherris, Published by Prentice Hall International, U.S.A. Latest Edition.
- 6.2. **Medical Microbiology**
David Greenwood, Published By ELST with Churchill Livingstone Latest Ed
- 6.3. **A Colour Atlas of Infectious Diseases**
R.T.D. Emod, Published by Wolfe Medical, London, Latest Edition.
- 6.4. **A Colour Atlas of Microbiology**
Olds, Published by Wolfe Medical, London, Latest Edition
- 6.5. **Medical Parasitology**
Markeyl Voge/ David, Published by W.B. Saunders Company, London, 7th Edition
- 6.6. **Medical Virology**
David O.White/ Frank Fenner, Published by Academic Press, Inc., London, Latest Edition
- 6.7. **Medical Mycology Lecture Slides**
Al-Hedaithy, S.S.A., Al-Kheraiji for Printing.2006. Riyadh.
Distributors; Medical Book House, King Abdallah Road (West), and Al-Obeikan Bookstores, Riyadh.
- 6.8. **Medical Mycology**
J.Kwon Chung and J. Bennettee. Published by Lea & Febiger, Philadelphia, latest edition.