University of Basrah

College of Veterinary Medicine

Department of Microbiology

VETERINARY MICROBIOLOGY SYLLABUS

Course Name: Veterinary Microbiology

Class : 3rd Class

Semester : 1st & 2nd semester

Course's objectives

1. To provide students with important knowledge about pathogenic microorganisms of veterinary significance

2. To make students understand the zoonotic aspects of microbial pathogens

3. To make students familiar with pathogens that cause food and feed poisoning

4. Students will be trained on how they deal with clinical specimens of infectious diseases

5. To make students familiarized with culture characteristics, macroscopic and microscopic recognition of veterinary microbial pathogens

REFERENCE BOOKS

P.J.Quin,BKMarkey,MECarter,WJDonnelly andFCLeonard. *Veterinary Microbiology and Microbial Disease*. Blackwell Science

. Peter Borriello, Patrick R. Murray and Guido Funke. Topley and Wilson's Microbiology and Microbial Infections, Bacteriology Volumes I & II. Hodder Arnold

Glen Sonder J & Karen W Post. Veterinary Microbiology: Bacterial and Fungal Agents of Animal Diseases. ColdSpringHarbor Lab. Press.

Prescot LM, Harley JP & Klen DA.. Microbiology. Wm. C. Brown Publ.

Tortora GJ, Funke BR & Case CL.. Microbiology: An Introduction. Benjamin/Cummins Publ.

C.L. Gyles, J. .F Prescott, J.G. Songer, C.O. Thoen. Pathogenesis of Bacterial Infections in Animals. Wiley

Title of the Course: General Microbiology and Mycology

Class : 3rd

Semester : 1st Semester

Course Content		
week	**Topics**	**Hours**
1	**Introduction & History of Microbiology** Introduction to Microbiology: Definition and branches of Microbiology,Historical introduction including work of Pasteur, Koch, Lister.Recent developments.History of Antibiotics	3
2	**Structure of the Prokaryotic Cell** Bacterial morphology: Shape, size, arrangement and differential staining. General plan of the bacterial cell; nuclear apparatus, bacterial cytoplasm, intracellular granules; cell wall and membrane, capsule, endospore, flagella, fimbriae or pili, protoplast, spheroplast, L-forms, Prokaryotes vs ukaryotes etc.	3
3	**Microbial Growth & Nutrition** Bacterial Growth and Multiplication: Physico-chemical requirements; pH, temperature, oxidation reduction potential, gaseous and nutritional requirements, etc. Types of culture media; Bacterial multiplication and growth curves, continuous culture. Bacterial preservation	3
4	**Control of Microbial Growth** Disinfectants, antibiotics and chemotherapy**.**	3
5	**Microbial Metabolism** Classes of enzymes, Competitive inhibition , General catabolic pathways, Summary of Aerobic Metabolism	3
6 and 7	**Bacterial Genetics** DNA/RNA Structure & Function DNA Replication RNA & Protein Synthesis (Transcription/Translation) Regulation of Gene xpression Mutation: Change in the Genetic Material	6
9	**Fungi:** **Introduction to fungi, moulds and yeasts, growth requirements and modes of replication.**	3

	Systematic Bacteriology	3
10	***Staphylococcus***. - Extracellular metabolites of Staphylococci *-Staphylococcus aureus* *-Short description of Staphylococcus hyicus, Staphylococcus intermedius, Staphylococcus epidermidis*	3
11	**Genus: *Streptococcus*** *Streptococcus pyogenes* *Streptococcus equi* *Genus: Streptococcus contd.* • *Streptococcus agalactiae* • *Streptococcus dysgalactiae* • *Streptococcus uberis*	3
12	***genus: Corynebacterium*** • *Corynebacterium pseudotuberculosis* • *Corynebacterium bovis* • *Rhodococcus equi*	3
13	, ***Genus: Arcanobacterium*** • *Arcanobacterium pyogenes* ***Genus: Nocardia*** • *Nocardia ratislav* ***Genus: Dermatophilus*** • *Derlmatophilus congolensis*	3
14	***Spirochaetes*** ***Genus: Leptospira*** • *Leptospira interrogans serovars: icterohaemorrhagiae, canicola, ratis, hardjo, ratislava, grippotyphosa, Leptospira borgpetersenii serovars: tarassovi, hardjo*	3
15	***Genus: Borrelia*** • *Borrelia anserine* • *Borrelia burgdorferi* **Genus: Listeria** • *L. monocytogenes*	3
First Exam	5-6th weeks of the course 10%	
Second Exam	10-11th weeks of the course 10%	

Title of the Course: Systematic Bacteriology and Mycology

Class : 3rd

Semester : 2nd Semester

An overview of classification and nomenclature of bacteria.Morphology, cultural characteristics, biochemical activities,resistance to physico-chemical agents, antigenic properties, toxins,association with animal diseases, diagnosis and immuno-prophylaxis for the following genera/groups:

Course Content		
week	**Topics**	**Hours**
1	***Systematic Bacteriology*** ***Genus: Clostridium*** • *Types of Clostridia – Histotoxic, Neurotoxic, Enteropathogenic etc.* • *Clostridium chauvoei* • *Clostridium perfringens*	3
2	• *Clostridium tetani* • *Clostridium botulinum* • *Short description of other Clostridia.*	3
3	***Genus: Mycobacterium*** • *Mycobacterium tuberculosis* • *Mycobacterium bovis* • *Mycobacterium avium* • *Mycobacterium avium subsp. Paratuberculosis*	3
4	***Genus: Pasteurella*** • *Pasteurella multocida* ***Genus: Moraxella*** *Moraxella bovis*	3
5	**Erysipelothrix:,** E. insidiosa, **Bacteriods** (non-spore forming anaerobic bacteria), Fusobacterium and Bacteriods nodosus	3
6	*Family:* ***Enterobacteriaceae****- General features and classification* ***Genus: Escherichia*** • *Escherichia coli* ***Genus: Salmonella*** • *Nomenclature of Salmonella, Salmonella enterica and its subspecies* • *Salmonella Typhimurium* • *Salmonella Choleraesuis* • *Salmonella Pullorum* • *Salmonella Gallinarum*	3

	Genus: Klebsiella • *Klebsiella pneumoniae* ***Genus: Proteus*** • *Proteus vulgaris* • *Proteus mirabilis*	
7	*Continue.... Enterobacteriaceae* ***Genus: Yersinia*** • *Yersinia pestis* • *Yersinia pseudotuberculosis* • *Yersinia enterocolitica* ***Genus: Proteus*** • *Proteus vulgaris* • *Proteus mirabilis*	3
8	***Genus: Pseudomonas*** • *Pseudomonas aeruginosa* ***Genus: Burkholderia*** • *Burkholderia mallei* • *Burkholderia pseudomallei* ***Genus: Manheimia*** • *Manheimia haemolytica*	3
9	***Genus: Brucella*** • *Brucella abortus* • *Brucella meligensis* • *Short description of B. canis and B. suis*	3
10	***Genus: Taylorella*** • *Taylorella equigenitalis* ***Genus: Haemophilus*** • *Haemophilus influenzae* • *Haemophilus paragallinarum*	3
11	***Genus: Mycoplasma*** • *General characters of Mycoplasma* • *Mycoplasma mycoides subsp. Mycoides* • *Mycoplasma mycoides subsp. Mycoides Mycoplasma capricolum subsp. Capripneumoniae* • *Mycoplasma gallisepticum* • *Short description of other species of Mycoplasma*	3
12	***Rickettsia and Chlamydia***	3

13	**Systematic Mycology** ***Dermatophytes*** • ***Genus: Microsporum****, Microsporum canis, Microsporum gypseum and other species affecting domestic animals* • ***Genus: Trichophyton****, Trichophyton equinum, Trichophyton mentagrophytes, Trichophyton verrucosum*	3
14	• ***Genus Aspergillus:*** *Aspergillus fumigates; Aspergillus flavus* • ***Candida albicans*** • ***Cryptococcus neoformans*** • ***Malassezia pachydermatis*** • ***Blastomyces dermatitidis*** • ***Coccidioides immitis***	3
15	• ***Histoplasma capsulatum*** • ***Histoplasma farciminosum*** • ***Sporothrix schenckii*** • ***Zygomycoses:*** *Mucoqwrmycosis, Entomophthomycosis* • ***Rhinosporidium seeberi*** • *Fungi associated with mastitis and abortions in animals* • ***Mycotoxicoses***	**3**
First Exam	5-6th weeks of the course 10%	
Second Exam	10-11th weeks of the course 10%	