microbiology

microbiology A course in which the composition, properties and work of bacteria, parasites, pathological viruses and some related diseases are studied with diagnosis and treatment.

Theoretical: It deals with some of the most common types of bacteria, viruses and parasites that cause oral and dental diseases in detail and requires continuous memorization of mission points and labels. Practical: In the microbiology laboratory, you learn the most important tests needed by the doctor in diagnosing infectious diseases, the method of cultivation, and determining the type and characteristics of bacteria and fungi available in the laboratory. The practical exam depends on identifying the type of microorganism through images and diagnosing the disease or identifying the types of analyzes

Different Learning Methods in the Department of Dentistry

A- Auditory method: This method depends on communicating information in the form of sounds that are heard by the learner for analysis and storage.
B- Visual method: in which information is communicated by displaying color images, videos or any form of visual educational aids.
C- Reading method: It is one of the methods that depend on reading information to understand and store it.
D. Interdisciplinary professional education where dental students collaborate with other healthcare professionals, to promote a holistic approach to patient care.

Different evaluation methods for students in the Department of Dentistry

Daily tests with multiple-choice questions for subjects that require practical skills.
B- Daily exams with practical questions.
C- Semester and final exams.
D- Setting grades for the assigned homework .
H- Grades of participation of questions competing for the subjects of study.
G- Daily evaluation of the student's work in scientific laboratories and educational clinics.

Learning Outcomes for Dental Courses

Using health information technology in oral and dental health care effectively.
Apply appropriate professional, ethical and legal standards in the provision of patient care in accordance with health care rules and regulations.
Providing graduates with scientific knowledge and professional skills in the fields of oral and dental surgery, dental prosthesis, dental preservation,

orthodontics, pediatric dentistry, periodontal pathology and surrounding tissues.

Knowledge of the principles of oral and dental health and understanding of the development, prevention and treatment of related diseases

Health promotion and disease prevention to serve the community.

Integrating basic and medical sciences into healthcare practice.

Develop decision-making and problem-solving skills in healthcare.

Evaluate the state of oral and dental health and the medical condition of the patient, request the necessary diagnostic analyzes, and interpret the results of various analyzes to reach the appropriate diagnosis.

Prepare a care plan for the prevention and treatment of diseases taking into account the needs of the patient.

Demonstrate competence in performing procedures safely in all aspects of dentistry and prevent injuries arising from treatment.

Providing graduates with theoretical knowledge and laboratory and clinical skills that increase the effectiveness of diagnosis.

Preparing dental graduates and training them to become distinguished in various fields of dentistry.

Lesson name and units

Subject	***1st Semester hours/week***		***2nd Semester hours/week***		***Units***
	Theory	*Practical*	*Theory*	*Practical*	
7. Microbiology **علم الاحياء المجهريه**	2	2	2	2	6

بنية المقرر

1-Subject title	**Microbiology**	
2-Number of credits	Theory:4	Laboratory:2
3-Number of contact hours	Theory: 2h/wk.	Laboratory:2h/wk.
4-Subject time	Third Year	

No.	Title of the lectures	Hours

1	Morphology, Ultra structures, physiology and metabolism of microorganisms:- -Eukaryotic & Prokaryotic cells -Cell structure of prokaryotes -Comparison between G+ve & G-ve cell wall	**2**
2	-Microbial growth, growth curve -Metabolism of microorganisms Molecular biology & bacterial genetics	**2**
3	-Sterilization and Disinfection	**2**
4	Antibiotic and chemotherapy:- -Antibiotic, sources -Mode of action of antibiotic -Anti-microbial sensitivity tests -Bacterial resistance -Prophylactic use	**2**
5	- Introduction to general immunology and oral immunology - Non-specific and specific immunity - Antigen - Immunoglobulin - Humeral and Cellular Immunity	**2**
6	- Cells and organs of the immune system - Complement system - Human leukocyte antigen - Role of complement and HLA in oral disease	**2**
7	- Oral and mucosal immunity - Autoimmunity and immune tolerance	**2**
8	- Hypersensitivity reactions - Antimicrobial and immunological defenses of saliva and gingival crevicular fluid components	**2**
9	Host-parasite relationship & Nosocomial infection -Symbiosis, Commensalism, Amphibiosis, Antagonistic -Sources of infection in hospital and -nosocomial infections -Post-operative wound infection, burns infections	**2**
10	Streptococci -Pyogenic Streptococci -Lancefield group -Pathogenesis of streptococci	**2**

	-Epidemiology, treatment and prevention -Viridans streptococci -Pneumococci	
11	Staphylococci -Virulence factors - and pathogenesis -Epidemiology, treatment and prevention	**2**
12	G- negative diplococcic , Vellionella and Moraxella Neisseria gonorrhea, N. meningitidis	**2**
13	Lactobacilli, Actinomyces and *Corynebacterium diphtheriae* & Diphtheroids	**2**
14	Bacillus: B. subtilis, B. anthracis and B.ceres	**2**
15	Clostridium : C. perfringenis , C. tetani, C. botulinum, and difficile	**2**
16	Enterobacteriaceae -E.coli, Salmonella, Shigella,	**2**
17	Enterobacter, Klebsiella, proteus, Yersinia	**2**
18	Mycobacteruim -Tuberculosis & Leprae	**2**
19	Brucella, Haemophilus, Vibirio	**2**
20	- Aggregatibacter, porphyromonas, prevotella, Bacteroids	**2**
21	Fusiforms and Spirochaetes -Fusobacterium, leptotichia	**2**
22	Treponema and oral Treponema	**2**
23	Mycoplasma, Chlamydia and Rickittsiae	**2**
24	Ecology of oral flora -Indigenous flora -Supplemental flora -Transient flora -Sources of oral bacteria -Factors modulating growth of bacteria in the oral cavity	**2**
25	Microbiology of dental caries -Dental plaque & plaque metabolism - plaque homeostasis -cariogenic microorganisms -Mutans Streptococci -Lactobacilli and Actinomyces-	**2**
26	Microbial colonization- Caries prevention- Antibacterial factors in saliva- -Vaccination against dental caries	**2**
27	Microbiology of periodontal disease and Endodontics -Subgingival microbial complex -specific , non-specific and Ecological plaque hypothesis - Porphyromonas, prevotella, Aggregatibacter virulence factors of periodontal pathogens endodontic microbiota and Routes of root canal infection -ecology of endodontic microbiology	**2**
28	Virology	**2**

	-general structure of viruses -classification	
29	viral replication -Isolation & diagnosis -Oral virology	**2**
30	- Oral mycology and Oral parasitology -Introduction, epidemiology, transmission -E.histolotica, E.gingivalis, T.tenax -Fungal cells -classification -Candida	**2**
Total		**60**

Clinical requirements

Lab number	Study unit title	Hours
1	Orientation to the Microbiology laboratory	**2**
2	The microscope	**2**
3	Sterilisation and disinfection:	**2**
4	Bacterial growth	**2**
5	Types of culture media	**2**
6	Sampling and transport of test material	**2**
7	Laboratory cultivation of microorganisms	**2**
8	Bacterial identification:1-Macroscopical characteristics (colonial morphology and cultural characteristics).	**2**
9	2. Microscopical examination (morphology of bacterial cells).	**2**
10	Staining	**2**
11	Biochemical tests (part 1).	**2**
12	Biochemical tests(part2).	**2**
13	Biochemical tests(part3).	**2**
14	Antibiotic sensitivity test(part 1).	**2**
15	Antibiotic sensitivity test(part 2).	**2**
16	Serological tests (antigen and antibody detection tests) (part 1).	**2**
17	Serological tests (antigen and antibody detection tests) (part 2).	**2**
18	Nucleic acid assays, Animal pathogenicity test	**2**
19	Staphylococci	**2**
20	Streptococci	**2**
21	Corynebacterium	**2**
22	Spore-forming Gram-positive bacilli: Bacillus spp.	**2**
23	Clostridium spp.	**2**
24	Mycobacterium spp.	**2**
25	Enterobacteriaceae (part1)	**2**
26	Enterobacteriaceae (part2)	**2**
27	Enterobacteriaceae(part3)	**2**
28	Neisseriae spp.	**2**
29	Virology	**2**

30	Mycology	**2**
Total		**60**