

COURSE DESCRIPTION FORM	
Course Code and Name	DHF 290 Microbiology and Oral Microbiology
Course Semester	3rd – 4th semester
Catalogue Data of the Course (Course Content)	This course aims to understand the principles of basic microbiology, the cellular, taxonomic, etiopathogenetic characteristics of microorganism types in the human organism and oral environment, basic laboratory and clinical definitions of microorganisms and their relations with each other and with the host organism. It also includes learning the types and characteristics of the host's immune response at the cellular and systemic level, laboratory diagnosis of microorganisms, understanding of antimicrobials for the treatment and prevention of infectious diseases, disinfection, sterilization and vaccination processes.
Course Textbooks	<p>Microbiology 1.Murray PR, Rosenthal KS, Pfaller MA: Medical Microbiology, 2005-12-192 2. Diagnostic Microbiology, Bailey&Scott's 11th Edition 2002 3. Temel ve Klinik Mikrobiyoloji, Ustaçelebi Ş: 1999</p> <p>Immunology Roitt I, Brostoff J, Male D. 2000</p> <p>Oral Microbiology 1. Ağız Mikrobiyotası, M. Altındış, 2022, Nobel Kitabevi 2. Essential Microbiology for Dentistry, I. Samaranayake, 2006</p>
Supplementary Textbooks	1.Brock's Biology of Microorganisms 13th ed. 2.Prescotts Microbiology 9th Ed. 2014 3.Tıp ve Diş hekimliğinde Genel ve Özel Mikrobiyoloji, T. Cengiz, A. Mısırlıgil, M. Aydın, Güneş Kitabevi, 2004
Credit (ECTS)	5
Prerequisites for the Course (Attendance Requirements)	Students must be successful in Medical Biology and Genetics, Anatomy, Histology, Biochemistry, Organic chemistry lectures previously. It is mandatory to attend the course
Course Type	Vocational / Technical Compulsory Course
Language of Instruction	Turkish
Course Objectives	<p>To teach the principles of General and Oral Microbiology, the types of microorganisms in the human organism and oral environment, their cellular, metabolic and pathogenic structures, and to explain the pathogenic properties of their relationship with infections. To comprehend the relationships of microorganisms with each other and with the host organism, their roles in the etiopathogenesis of diseases, the immune response of the host and basic laboratory methods for the diagnosis of these factors.</p> <p>To teach the types, mechanisms of action, properties and usage of antimicrobials used against microbial agents.</p> <p>To provide an understanding of the structure, types, cells of the immune system, how the immune response is against infectious agents, and the defense systems of the body and mouth.</p>
Course Learning Outcomes	1- Knows the principles of microbiology, the types of microorganisms, and explain their relationship with general and oral diseases. 2- Learns microbial diversity and classification and understands their interrelationships and its importance in health. 3- Learns the general and special structures of prokaryotes, their roles in the etiopathogenesis of diseases and virulence factors and can follow the current situation on the subject. 4- Learns microbial metabolism, nutrition, breeding conditions, control of reproduction. 5- Know the general properties of viruses and viral factors important in dentistry and associate them with the pathogenesis of viral infections. 6- Knows the general properties of fungi and fungal factors important in dentistry, correlates the related fungal infections and their pathogenesis. 7- Knows the general characteristics of parasites and parasitic factors important in dentistry, associates the related parasitic infections and their pathogenesis. 8- Explains the microorganism-microorganism, microorganism-host relationships, relate the roles of the body in normal flora and oral ecology.

	<p>9- Defines the roles of microorganisms in oral infections, can make microbiological diagnosis of oral agents and learns about antimicrobials in treatment approaches.</p> <p>10- Learns the immune system cells, their types, structures of antigens, antibodies and immune complexes and explains the functions and activations of the immune response.</p> <p>11- Learns the features and components of natural and acquired immunity</p> <p>12- Knows the defense mechanisms of the body and mouth, associates vaccines and prophylaxis principles with human immunity,</p> <p>13- Learns autoimmunity and autoimmune reactions and associates with autoimmune diseases.</p> <p>14- Knows microbiological, serological and immunological diagnostic methods.</p> <p>15- Explains the role of microorganisms in dental plaque formation, the role of microorganisms in the formation of dental calculus, microbiology of dental caries and their roles in pathogenesis.</p> <p>16- Describes the characteristics and immune defense forms of microorganisms that can be isolated from dental and periodontal infections.</p> <p>17- Knows the principles, sources and epidemiology of infectious diseases, clinical and laboratory approach to infectious diseases and explains the etiopathogenesis of the disease.</p>
<p>Instruction Method (<i>Face-to-face, Distance education etc.</i>)</p>	<p>Face-to face, Oral lecturing, Questionary-Answering (intactive learning)</p>
<p>Weekly Schedule of the Course</p>	<p>Week 1: Introduction to microbiology, history,</p> <p>Week 2: Microbial taxonomy, classification of the microorganisms and cellular structures of the microorganisms</p> <p>Week 3: General characteristics, reproduction patterns of bacteria, bacterial metabolism, laboratory diagnosis</p> <p>Week 4: Classification of viruses, structural features, pathogenesis of viral infections and viral diagnosis methods</p> <p>Week 5: Medically important DNA viruses and related diseases</p> <p>Week 6: Medically important RNA viruses and related diseases</p> <p>Week 7: Fungi taxonomy, general characteristics, pathogenesis, diagnostic methods used in fungal diseases and medically important fungal diseases.</p> <p>Week 8: Classification of parazites, structural features, pathogenesis of parasitic infections and diagnosis methods</p> <p>Week 9: Microorganism-microorganism, microorganism-host relationships, normal flora of the human body</p> <p>Week10: Introduction to immunology, immune system cells and functions, principles of natural and acquired immunity, vaccines and prophylaxis principles.</p> <p>Week 11: Antigens, Antibodies and the structure and functions of immune complexes Complement system and inflammatory response, Microbial antigens,</p> <p>Week 12: Immune system diseases and immunological diagnostic methods, Autoimmunity, autoimmune reactions</p> <p>Week 13: Antimicrobials and their mechanism of action, principles of antimicrobial treatment, usage patterns in rational use of antibiotics, selected drugs and their indications in dentistry.</p> <p>Week 14: Sterilization and disinfection methods in dentistry,</p> <p>Week 15: Chemical biocidal agents used for sterilization, disinfection, decontamination, usage criteria and the rules of usage in dentistry.</p> <p>Week 16: Midterm Exam (1st midterm)</p> <p>Week 17: Oral ecology and oral microbiology</p> <p>Week 18: Role of microorganisms in dental biofilm, dental plaque and dental calculus formation</p> <p>Week 19: Tooth decay (dental caries) microbiology</p> <p>Week 20: Causative microbiological agents in periodontal infections</p> <p>Week 21: Anaerobic microorganisms and infections in dentistry, microbiological diagnosis, culture methods and antimicrobial treatment for the agent</p> <p>Week 22: Causative microbiological agents in dentoalveolar infections</p>

	<p>Week 23: Medically important Gram positive pyogenic bacteriaeae (upper and lower respiratory tract infection agents)</p> <p>Week 24: Medically important Gram negative bacteriaeae and their systemic and oral infections</p> <p>Week 25: Microorganims that causes mouth ulcers</p> <p>Week 26: Causative microbiological agents in dentoalveolar infections</p> <p>Week 27: Intracellular pathogens and related infections in dentistry.</p> <p>Week 28: The role of oral Microbiota in systemic diseases</p>								
<p>Teaching Activities (The time spent for the activities listed here will determine the amount of credit required)</p>	<p>Weekly theoretical course hours: 14x4 hrs (1stmidterm)/14x2 hrs (2nd midterm)= 84</p> <p>Weekly practical course hours:0</p> <p>Reading activities</p> <p>Internet search and library work: 28 weeksx1 hour=28</p> <p>Designing and implementing materials</p> <p>Making a report</p> <p>Preparing and making presentations</p> <p>Midterm and revision for midterm: 2 weeks x1 hour per semester= 8</p> <p>Final exam and revision for final exam: 1 week x 4 hours=4</p>								
<p>Assessment Criteria</p>		Number(s)	Weight (%)						
	Midterm exam	2	60						
	Assignment								
	Application								
	Project								
	Practice								
	Quiz								
	Final exam	1	40						
Total	3	100							
<p>Workload of the Course</p>	Activity	Number of Weeks	Duration (Weekly Hour)	End of Semester Total Workload					
	Weekly theoretical course hours	28	4/2	84					
	Weekly practical course hours								
	Reading activities								
	Internet search and library work	28	1	28					
	Designing and implementing materials								
	Making a report								
	Preparing and making presentations								
	Midterm and revision for midterm	2	4	8					
	Final exam and revision for final exam	1	4	4					
	Total workload			124					
	Total workload/ 25			4,96					
	Course Credit (ECTS)			5					
<p>Contribution Level between Course Outcomes and Program Outcomes</p>	No	Program Outcomes			1	2	3	4	5
	1	PO1 Knows the principles of microbiology, the types of microorganisms and explains their relationship with the diseases that can be seen in the mouth and the general body.							X
	2	PO2 Learns microbial diversity, classification and understands the relationships between microorganisms and their importance in health.						X	
	3	PO3	X						

		Learns general and special structures of prokaryotes, metabolism, nutrition, reproductive conditions, control of reproduction, their roles in the etiopathogenesis of diseases and the current on virulence factors.						
	4	PO4 Knows the general properties of viruses, fungi and parasites. Understands viral, fungal and parasitic agents that are important in dentistry and associates them with the etiopathogenesis of infections.			X			
	5	PO5 Understands the normal flora of the body and its roles in oral ecology, and knows how to evaluate microbiological diagnosis and treatment approaches of oral agents in line with personal learning needs by reaching the best current scientific evidence.					X	
	6	PO6 Learns the immune system cells, their types, structures of antigens, antibodies and immune complexes and explain the functions of the immune response, the features of Native and Acquired immunity, their activation and their components.					X	
	7	PO7 Explain the role of microorganisms in the formation of dental plaque, the role of microorganisms in the formation of dental calculus, the microbiology of dental caries and their roles in pathogenesis						X
	8	PO8 Describes the characteristics and immune defense forms of microorganisms that can be isolated from dental and periodontal infections.			X			
	9	PO9 Knows systemic infectious agents in the mouth and other parts of the body, understands the principles of antimicrobial use against pathogens, and associates the practices of infection control in dentistry.	X					
	10	PO10 Knows, grasps, correlates, evaluates the symptoms and findings, diseases and conditions and professional practices in the national core education program of dentistry and Gazi University Faculty of Dentistry Extended Education Program.	X					
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