

Program Description/ Microbiology Department

Program Description				
Year/Level	Course Code	Course Name	Credit Hours	
			theoretical	practical
2023/2024-3ed level	NM03-MICImm:31	Immunology	2	2
2023/2024-3ed level	NM03-MICBac:31	Bacteriology and Mycology	2	2
2023/2024-3ed level	NM03-MICVir:32	Virology	2	2
2023/2024-3ed level	NM03-MICPar:32	Parasitology	2	2

Program Skills Outline															
				Required program Learning outcomes											
Year/Level	Course Code	Course Name	Basic or optional	Knowledge				Skills				Ethics			
				A1	A2	A3	A4	B1	B2	B3	B4	C1	C2	C3	C4
3rd	NM03-MICBac-31	Bacteriology & Mycology	Basic			█		█				█			
	NM03-MICImm-31	Immunology	Basic			█		█				█			
	NM03-MICPar-32	Parasitology	Basic			█		█				█			
	NM03-MICVir-32	Virology	Basic			█		█				█			

Program Skill Outline / Microbiology Department

Course Description Form

1. Course Name:	
Bacteriology & Mycology	
2. Course Code:	
MICBac:31	
3. Semester / Year:	
1/3	
4. Description Preparation Date:	
5. Available Attendance Forms:	
6. Number of Credit Hours (Total) / Number of Units (Total)	
6 credit hours/ 3 units	
7. Course administrator's name (mention all, if more than one name)	
Name: Prof. Dr. Azhar A. F. Al-Attraqchi, Prof. Dr. Thanaa R. Abdul-Rahman, Prof. Dr. Jabbar S. Hassan, Assistant Prof. Dr. Maysaa Dh. Abdul-Razzaq, Lecturer Dr. Fadi Yaqoub Email: tariq_963@yahoo.com	
8. Course Objectives	
This course adapt teaching of the Undergradu students of medical Bacteriology and Mycology know the important diseases developed from differ pathogenic bacteria and fungi, the new methods Dx, Differential Dx., new trials for treatment, : prevention & control.	<ul style="list-style-type: none"> • • •
9. Teaching and Learning Strategies	
Strategy	Studying of the pathogenic bacteria and fungi, life threatening bacteria and fung immunocompetent and immunocompromised patients, Signs and symptoms, metho of diagnosis, and treatment

10. Course Structure (Theory)

Week	Hours	Required Learning Outcomes	Unit/Module or Topic Title	Learning Method	Assessment Method
1	1		Bacterial Cell, Classification and Growth	PPT	
1	2		Antibiotics & Antibiotic Resistance	PPT	
2	1		Staphylococci	PPT	
2	1		Streptococci (part 1)	PPT	
3	1		Streptococci (part 2) and Enterococcus	PPT	
3	1		Neisseriae, Moraxella catarrhalis and Acinetobacter	PPT	
4	1		Mycobacteria	PPT	
4	1		Enterobacteriaceae (part 1)	PPT	
5	1		Enterobacteriaceae (part 2) and Pseudomonas	PPT	
5	1		Haemophilus, Bordetella and Legionellae	PPT	
6	1		Corynebacterium, Listeria and Erysipelothrix	PPT	
6	1		Clostridia (invasive)	PPT	
7	1		Clostridia (non-invasive) Bacillus	PPT	
7	1		Spirochetes	PPT	
8	1		Introduction to Mycology and Mycetoma	PPT	
8	1		Normal Microbiota and Probiotics	PPT	
9	1		Dermatophytosis	PPT	
9	1		Infections Caused by Anaerobic Bacteria	PPT	
10	1		Candidiasis	PPT	
10	1		Bartonella, Brucella, Francisella, Yersinia and Pasteurella	PPT	
11	1		Cryptococcosis	PPT	
11	1		Mycoplasma	PPT	
12	1		Histoplasmosis	PPT	
12	1		Vibrios, Aeromonas, Campylobacters and Helicobacter	PPT	
13	1		Blastomycosis & Aspergillosis	PPT	

13	1		Sporotrichosis & Antimycotics	PPT	
14	1		Miscellaneous Fungi	PPT	
14	1		Rickettsia & Chlamydia	PPT	
15	1		Microbial genetics	PPT	

Course Structure (Practical)					
Week	Hours	ILOs	Unit/Module or Topic Title	Teaching Method	Assessment Method
1	2		Introduction _ Biosafety & Biosecurity	PPT	
2	2		Basic Bacteriology Techniques staining and instrumentations Media, pure culture, sterilization and colony morphology	PPT	
3	2		Staphylococci	PPT	
4	2		Streptococci	PPT	
5	2		Neisseria, Mycobacterium, Corynebacterium.	PPT	
6	2		Enterobacteriaceae: Lactose fermenters and non-lactose ferment	PPT	
7	2		Pseudomonas, Vibrio, Campylobacter, Haemophilus & Brucella	PPT	
8	2		Clostridium & aerobic bacilli and an aerobic	PPT	
9	2		Urine & stool samples. Blood, CSF, sputum & swabs.	PPT	
10	2		Medical Mycology introduction	PPT	
11	2		Cutaneous Mycoses	PPT	
12	2		Systemic Mycosis	PPT	
13	2		Subcutaneous Mycoses	PPT	
14	2		Special techniques in medical mycology	PPT	
15	2		Clinical case presentation and diagnosis	PPT	

11. Course Evaluation

Distributing the score out of 100 according to the Mid - term 20 marks + 10 marks Quizzes and seminar tasks = 30, Final Laboratory exam (20 marks), Final theory Exam (50 marks),

12. Learning and Teaching Resources	
Required textbooks (curricular books, if any)	Medical Microbiology by Jawetz, 2017. Medical Mycology By Dr. Azhar A. F. Ibrahim, 2013. Medical Mycology By Chung & Bennett 2003, Clinical Mycology by William E.Dilmake, Peter G. Pappas & Jack D. Sobel 2003, Medical Microbiology by Jawets 2007.
Main references (sources)	
Recommended books and references (scientific journals, reports...)	
Electronic References, Websites	

Course Description Form

13. Course Name:	Immunology
14. Course Code:	MICImm:31
15. Semester / Year:	1/3
16. Description Preparation Date:	
17. Available Attendance Forms:	
18. Number of Credit Hours (Total) / Number of Units (Total)	4/3
19. Course administrator's name (mention all, if more than one name)	<p>Name: Professor Dr.Ahmed Abdul-Hassan Abbas Professor Dr. Haider Faisal Ghazi Lecturer. Mohammed Razak Ali Email: ahmed26770@nahrainuniv.edu.iq</p>

20. Course Objectives	
Course Objectives	To provide a basic knowledge of the immune response and its involvement in health and disease.
21. Teaching and Learning Strategies	
Strategy	Introduces the principles of immunology including: development of the immune system, innate immunity, immunoglobulin structure and genetics, antigen-antibody reactions, major histocompatibility complex reactions and antigen presentation, T and B cells activation, cytokines, Immune responses to infectious organisms and Tumors, autoimmune diseases, Allergies, Immune deficiencies, Transplantation, Immunotherapy and Vaccination

22. 11. Course Theory Structure

Week	Hours	Required Learning Outcomes	Unit/Module or Topic Title	Teaching Method	Assessment Method
1	1		Overview of the Immune System	PPT	Quizzes and oral discussion
1	1		Cells and Organs of the Immune System	PPT	Quizzes and oral discussion
2	1		Innate immunity: Recognition receptors, signaling,	PPT	Quizzes and oral discussion
2	1		Phagocytosis and Inflammation	PPT	Quizzes and oral discussion
3	1		Cytokines	PPT	Quizzes and oral discussion
3	1		Complement	PPT	Quizzes and oral discussion
4	1		Human Leukocyte antigen	PPT	Quizzes and oral discussion
4	1		Adaptive Immunity: Recognition Receptors T & B cell receptors	PPT	Quizzes and oral discussion
5	1		T-Cell Development, Activation, Differentiation, Effector functions and Memory Generation	PPT	Quizzes and oral discussion

5	1		B-Cell Development, Activation, Differentiation, and Memory Generation	PPT	Quizzes and oral discussion
6	1		Antibody generation, diversity and monoclonal Abs	PPT	Quizzes and oral discussion
6	1		Immune system regulation	PPT	Quizzes and oral discussion
7	1		Mucosal Immunology	PPT	Quizzes and oral discussion
7	1		Immunity against infections1	PPT	Quizzes and oral discussion
8	1		Immunity against infections2	PPT	Quizzes and oral discussion
8	1		Immunity against infections3	PPT	Quizzes and oral discussion
9	1		Tumor immunology	PPT	Quizzes and oral discussion
9	1		Hypersensitivity1	PPT	Quizzes and oral discussion
10	1		Hypersensitivity2	PPT	Quizzes and oral discussion
10	1		Hypersensitivity3	PPT	Quizzes and oral discussion
11	1		Tolerance	PPT	Quizzes and oral discussion
11	1		Autoimmunity1	PPT	Quizzes and oral discussion
12	1		Autoimmunity2	PPT	Quizzes and oral discussion
12	1		Immunodeficiency1	PPT	Quizzes and oral discussion
13	1		Immunodeficiency2	PPT	Quizzes and oral discussion
13	1		Transplantation	PPT	Quizzes and oral discussion
14	1		Vaccination	PPT	Quizzes and oral discussion
14	1		Immunotherapy	PPT	Quizzes and oral discussion
15	1		Immunodiagnosis	PPT	Quizzes and oral discussion
15	1		Clinical cases	Case based discussion	Oral discussion

11. Course Laboratory structure					
Week	Hours	ILOs	Unit/Module or Topic Title	Teaching Method	Assessment Method
1	2		Introduction to Immunology laboratory	PPT & Lab training	Quizzes, oral discussion and interpretation of results Final exam
2	2		Antibody-Antigen (Ab-Ag) reaction (precipitation)	PPT & Lab training	
3	2		Electrophoretic Techniques (Immunoelectrophoresis)	PPT & Lab training	
4	2		Ab-Ag reaction (hemagglutination)	PPT & Lab training	
5	2		Ab-Ag reaction (complement fixation)	PPT & Lab training	
6	2		Rapid Immunoassay	PPT & Lab training	
7	2		Ab-Ag reaction (ELISA) and Immunoblot.	PPT & Lab training	
8	2		Ab-Ag reaction (Immunofluorescence test and RadioImmunoAssay)	PPT & Lab training	
9	2		Cell isolation, Cell counting and functional assessment	PPT & Lab training	
10	2		Flowcytometry	PPT & Lab training	
11	2		Immunocytochemistry (ICC) and Immunohistochemistry (IHC)	PPT & Lab training	
12	2		Evaluation of cell activity assay	PPT & Lab training	
13	2		Cross-matching and HLA-typing	PPT & Lab training	
14	2		Clinical case presentation and diagnosis	PPT & Lab training	
15	2		Clinical case presentation and diagnosis	PPT & Lab training	

23. Course Evaluation	
Distributing the score out of 100 according to the Mid – term 20 marks + 10 marks Quizzes and seminar tasks = 30, Final Laboratory exam (20 marks), Final theory Exam (50 marks),	
24. Learning and Teaching Resources	
Required textbooks (curricular books, if any)	Owen J, Punt J, Stranford S, Jones P. <i>Kuby Immunol</i> Macmillan Learning; 2018.
Main references (sources)	1. Chapel H, Haeney M, Misbah S, Snowden N. <i>Essentials of Clinical Immunology</i> , Includes

	Wiley E-Text. Wiley; 2014.
Recommended books and references (scientific journals, reports...)	
Electronic References, Websites	

Course Description Form

25. Course Name:	
Parasitology	
26. Course Code:	
MICPar:32	
27. Semester / Year:	
2/3	
28. Description Preparation Date:	
29. Available Attendance Forms:	
30. Number of Credit Hours (Total) / Number of Units (Total)	
4/3	
31. Course administrator's name (mention all, if more than one name)	
Name: Prof. Dr. Haider Sabah Kadhem Assistant Professor Dr. Huda Dhaher Hathal Assistant Professor Dr. Qudus Wamedh Jamal Email: Hs.kadhim.medschool@gmail.com	
32. Course Objectives	
Course Objectives	The goal of this course is to provide knowledge of medically important parasitic infection in Iraq
33. Teaching and Learning Strategies	
Strategy	This course is designed to introduce students to the medical parasitology field and provide complete information for students to know about parasites in respect to the classification, pathogenesis, understand new techniques of diagnosis

	and prevention. In addition, this course aims at overviewing the role parasites in human morbidity and mortality.
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11. Course Structure (Theory)

Week	Hours	ILOs	Unit/Module or Topic Title	Teaching Method	Assessment Method
1	1		Introduction, classification, definitions	PPT	
1	1		host-parasite relationships.	PPT	
2	1		Nematodes: Enterobius vermicularis	PPT	
2	1		Ascaris lumbricoides,	PPT	
3	1		Trichuris trichiura. Strongyloides stercoralis	PPT	
3	1		Hookworms	PPT	
4	1		Hookworms and Trichinella spiralis	PPT	
4	1		Introduction to filaria	PPT	
5	1		Continue filaria	PPT	
5	1		Trematodes: Introduction, blood flukes: Schistosoma.	PPT	
6	1		Other flukes: Intestinal, pulmonary, hepatic.	PPT	
6	1		Cestodes: Introduction	PPT	
7	1		Echinococcus granulosus and E.multilocularis	PPT	
7	1		H. nana and H.diumutia, Taenia solium, Taenia saginata	PPT	
8	1		Dipylidium caninum, Diphyllbothrium	PPT	
8	1		Introduction to protozoa: Amoebae: Entamoeba histolytica	PPT	
9	1		Non-pathogenic Amoebae (E.coli, E.dispar, E.gingivalis),	PPT	
9	1		Opportunistic Amoebae (Naegleria fowleri, Acanthamoeba spp.)	PPT	
10	1		Flagellates: Intestinal, Oral and Genital Flagellates (Giardia lamblia,	PPT	
10	1		Trichomonas vaginalis, T.tenax)	PPT	
11	1		Blood and tissue Flagellates: Old and New World Leishmaniasis	PPT	
11	1		Blood and Tissue Flagellates: Trypanosomes	PPT	
12	1		Sporozoa: Malaria parasites.	PPT	
12	1		Toxoplasma and Cryptosporidium	PPT	
13	1		Ciliate and Medical Entomology	PPT	
13	1		Ciliate and Medical Entomology	PPT	
14	1		Molecular Parasitology	PPT	
14	1		Blood and tissue Flagellates: Old and New World Leishmaniasis	PPT	
15	1			PPT	

15	1				
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11. Course Structure (Theory)					
Week	Hours	ILOs	Unit/Module or Topic Title	Teaching Method	Assessment Method
1	2		Introduction: Safety, Stool, blood, urine and other samples examination	PPT	
2	2		<i>Ascaris lumbricoides</i> , <i>Enterobius vermicularis</i> , <i>Trichuris trichiura</i> .	PPT	
3	2		Hookworms and <i>Strongyloides stercoralis</i>	PPT	
4	2		<i>Trichinella spiralis</i> and <i>Filaria</i>	PPT	
5	2		<i>Schistosoma</i> and Other flukes: Intestinal, pulmonary, hepatic.	PPT	
6	2		<i>Echinococcus granulosus</i> , <i>E.multilocularis</i> ,	PPT	
7	2		<i>H. nana</i> , <i>H.diumutia</i> , <i>Taenia solium</i> and <i>Taenia saginata</i> , <i>Dipylidium caninum</i> , <i>Diphyllobothrium</i>	PPT	
8	2		<i>Entamoeba histolytica</i> <i>E. coli</i> , <i>E.dispar</i> , <i>E. genivalis</i> , Opportunistic Amoebae (<i>Naegleria fowleri</i> , <i>Acanthamoeba spp.</i>)	PPT	
9	2		<i>Giardia lamblia</i> and <i>Trichomonas vaginalis</i> .	PPT	
10	2		Old and New World <i>Leishmaniasis</i> and <i>Trypanosomes</i>	PPT	
11	2		<i>Malaria</i> parasites	PPT	
12	2		<i>Toxoplasma</i> and <i>Cryptosporidium</i>	PPT	
13	2		<i>Ciliate</i> and <i>Medical Entomology</i>	PPT	
14	2		<i>Unknown samples (Stool and urine)</i>	PPT	
15	2		Clinical cases	PPT	

34. Course Evaluation	
Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, reports etc	
35. Learning and Teaching Resources	
Required textbooks (curricular books, if any)	<ol style="list-style-type: none"> 1. Paniker s Textbook of Medical Parasitology 7E (2013) 2. Jawetz Melnick & Adelbergs Medical Microbiology and Immunology, editions 2023.
Main references (sources)	
Recommended books and references	

(scientific journals, reports...)	
Electronic References, Websites	

Course Description Form

36. Course Name:	
Parasitology	
37. Course Code:	
MICVir:32	
38. Semester / Year:	
2/3	
39. Description Preparation Date:	
40. Available Attendance Forms:	
41. Number of Credit Hours (Total) / Number of Units (Total)	
4/3	
42. Course administrator's name (mention all, if more than one name)	
Name: Prof. Ahmed Sahib Abdulmir Prof. Dr. Asmaa Baqir Salem Prof. Arwa Mujahid Abdulla Email: Ahmsah73@ced.nahrainuniv.edu.iq	
43. Course Objectives	
Course Objectives	The goal of this course is to provide Provision of medically oriented knowledge on viral disease
44. Teaching and Learning Strategies	
Strategy	The course provides the following: <ul style="list-style-type: none"> - Full medical and biomedical knowledge of clinical course of viral infections - Knowledge of viral agents diagnosis - Viral diseases management Prevention and vaccinations

11. Course Structure

Week	Hours	ILOs	Unit/Module or Topic Title	Teaching Method	Assessment Method
1	1		General prosperities & classification of viruses -New tables of classification - Mnemonics for virology classification	PPT	
1	1		Viral replication and genetics	PPT	
2	1		Cultivation of viruses, effect of virus on host cells Pathogenesis of viral diseases (acute, chronic, latent, and slow viral infection) Immunopathology of viruses	PPT	
2	1		Prevention and treatment of viral infections: Viral vaccines and interferon.	PPT	
3	1		Antiviral chemotherapy	PPT	
3	1		Medically important non-enveloped DNA viruses	PPT	
4	1		Medically important enveloped DNA viruses (1) - Vaccine trials Updated therapies	PPT	
4	1		Medically important enveloped DNA viruses (2) Vaccine trials to overcome latency of viruses Updated therapies New diagnostic approaches (rapid viral detection kits)	PPT	
5	1		Orthomyxoviruses (1)	PPT	
5	1		Orthomyxoviruses (2)	PPT	
6	1		Paramyxoviruses	PPT	
6	1		Hepatitis viruses (1)	PPT	
7	1		Hepatitis viruses (2) *(newly introduced anti-hepatitis drugs, and HCV vaccination trials)	PPT	
7	1		Rubella virus and other congenital viral infection Mechanism of Teratogenesis	PPT	
8	1		Rhabdovirus , RNA non-enveloped viruses	PPT	
8	1		Picornaviruses Reemergence of Poliomyelitis in eradicated areas	PPT	

9	1		Mid-exam	PPT	
9	1		Rotavirus *(newly introduced Rota virus vaccine in Iraq) Immunity to Rota virus	PPT	
10	1		Rabies	PPT	
10	1		Retroviruses (1)	PPT	
11	1		Retroviruses (2) *(HIV vaccines and curative therapy in HIV CHILDREN)	PPT	
11	1		HIV, AIDS management	PPT	
12	1		Corona virus, SARS	PPT	
12	1		Arboviruses and *Ebola Virus Zeka virus, Dengue virus	PPT	
13	1		Human Cancer viruses Mechanism Of HPV carcinogenesis	PPT	
13	1		Human Cancer viruses *(NEWLY DISCOVERED ONCOGENIC VIRUSES) Merkle cell polyomaviruses , BKV and JCV.	PPT	
14	1		*Bacteriophages - Phage therapy - Phage adjuvant therapies	PPT	
14	1		Review of medically important virological clinical cases	Case based discussion	
15	1		Review of medically important virological clinical cases	Case based discussion	

11. Course Structure					
Week	Hours	ILOs	Unit/Module or Topic Title	Teaching Method	Assessment Method
1	1		Introduction: Methods of diagnosing and detecting viral infections	PPT	
2	1		Preparation of tissue culture, and Types of tissue culture systems	PPT	
3	1		Inoculation of clinical sample in tissue culture	PPT	
4	1		Detection of virus growth in tissue culture, demonstration of different cytopathic effects	PPT	
5	1		Viral Titration and TCID ₅₀	PPT	
6	1		Indirect methods: serology (ELISA, CFT and hemagglutination inhibition test).	PPT	
7	1		Detection of viruses using immunocytochemistry (ICC) (viral antigenemia assay) and Immunohistochemistry (IHC).	PPT	
8	1		Detection of viruses using conventional polymerase chain reaction (PCR)	PPT	
9	1		Detection and quantification of viral load using Real time polymerase chain reaction (RT-PCR)	PPT	
10	1		Isolation and preparation of Bacteriophages	PPT	
11	1		Detection of viruses using EM and immuno-electron microscopy (IEM). (By collaboration with the Biology Department to demonstrate preparation of viral isolate from tissue culture into a grid to be examined under EM)	PPT	
12	1		Strategies of clinical, routine lab, and advanced virological diagnosis	PPT	
13	1		Rapid diagnostic tests for viruses	PPT	
14	1		Detection of viruses in tissues using In situ hybridization (ISH)	PPT	
15	1		Clinical cases review	Case based discussion	

45. Course Evaluation

Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, reports etc

46. Learning and Teaching Resources

Required textbooks (curricular books, if any)	3. Riedel, S., Morse, S.A., Mietzner, T.A. and Miller, S. (2019), <i>Jawetz Melnick & Adelbergs Medical Microbiology 28 E</i> , McGraw-Hill Education.
Main references (sources)	
Recommended books and references (scientific journals, reports...)	
Electronic References, Websites	