



Republic of Yemen
Ministry of Higher Education & Scientific Research
21 SEPTEMBER UNIVERSITY of MEDICALS & APPLIED
SCIENCES



Faculty of Laboratory medicine..

Department of microbiology & immunology

Course Specification of Medical Mycology

Course No. (03.02.328)

2022/2023

I. Course Identification and General Information:				
1	Course Title:	Medical Mycology		
2	Course Code & Number:	03.02.328		
3	Credit Hours:	Theory Hours		Credit Hours
		Lecture	Exercise	
		2	0	2
4	Study Level/ Semester at which this Course is offered:	3 rd year / 2nd Semester		
5	Pre –Requisite (if any):	General bacteriology		
6	Co –Requisite (if any):	None		
7	Program (s) in which the Course is Offered:	Bachelor in laboratory medicine		
8	Language of Teaching the Course:	English		
9	Study System:	semester		
10	Mode of Delivery:	Regular		
11	Location of Teaching the Course:	University Campus		
12	Prepared by:	Dr Gamil Taher Abdul Mughni		
13	Date of Approval:	2022-2023		

A. II. Course Description:

This course describe the basic introduction to medical mycology; the course consists Classification of fungi; morphological features of fungi (mycelium, spores, yeasts, etc); superficial mycoses; cutaneous mycoses; subcutaneous and systemic mycoses ; opportunistic fungal infections; microscopic, cultural, biochemical and serological tests used in the isolation of fungal pathogens in clinical specimens, antifungal agents and quality Assurance in Medical Mycology.

III. Alignment Course Intended Learning Outcomes with program outcomes			
III. Course Intended Learning Outcomes (CILOs)			Referenced PILOs
A. Knowledge and Understanding: <i>Upon successful completion of the course, students will be able to:</i>			
a1	Discuss the basic knowledge about pathogenicity, virulence factors mode of transmission, classification, structure, and morphological features of the different common human fungal pathogens.	A1	Discuss the core aspects of laboratory medicine including Biochemistry. Anatomy. histology. Physiology. Cell Biology. Pathology. Immunology. Microbiology. Epidemiology. and Public Health Medicine
a2	Define the different methods for laboratory diagnosis of infections caused by the common human fungal pathogens.	A3	Define different diagnostic markers and laboratory tests for each human body organs and common medical conditions
B. Intellectual Skills: <i>Upon successful completion of the course, students will be able to:</i>			
b1	Apply knowledge of mycology to diagnose potential fungal infections	B1	Integrate knowledge of basic Medical Sciences such as physiology. biochemistry ...etc. with the Applied and Clinical Medical Sciences such as Pathology. Clinical Biochemistry ...etc.
C. Professional and Practical Skills: <i>Upon successful completion of the course, students will be able to:</i>			
c1	Perform KOH examination (of skin,	C1	Perform clinical laboratory tests commonly



	hair, or nail scrapings), Indian ink and, germ tube test and Slide culture technique.		encountered in a hospital laboratory in the areas of Clinical Chemistry. Hematology. Immunohematology. Immunology. Microbiology. Histopathology and. Molecular Diagnostics.
D. Transferable Skills: <i>Upon successful completion of the course, students will be able to:</i>			
d1	Educate the general public and to assist patients through acceptable customer service interactions	D1	Educate the general public and to assist patients through acceptable customer service interactions

C. Alignment Course Intended Learning Outcomes with Teaching Strategies and Assessment methods :			
(A) Alignment Course Intended Learning Outcomes of Knowledge and Understanding to Teaching Strategies and Assessment Strategies:			
	Course Intended Learning Outcomes	Teaching strategies	Assessment Strategies
A1	Discuss the basic knowledge about pathogenicity, virulence factors mode of transmission, classification, structure and morphological features of the different common human fungal pathogens.	<ul style="list-style-type: none"> Interactive lectures Self-learning Discussion 	<ul style="list-style-type: none"> Written exam (mid and final terms and quizzes)
A2	Define the different methods for laboratory diagnosis of infections caused by the common human fungal pathogens.	<ul style="list-style-type: none"> Interactive lectures Self-learning Discussion 	<ul style="list-style-type: none"> Written exam (mid and final terms and quizzes)
(B) Alignment Course Intended Learning Outcomes of Intellectual Skills to Teaching Strategies and Assessment Strategies:			
	Course Intended Learning Outcomes	Teaching strategies	Assessment Strategies
-b1	- Apply knowledge of mycology to diagnose potential fungal infections.	<ul style="list-style-type: none"> Practical session 	<ul style="list-style-type: none"> Final practical exam



C Alignment Course Intended Learning Outcomes of Professional and Practical Skills to Teaching Strategies and Assessment Strategies:

	Course Intended Learning Outcomes	Teaching strategies	Assessment Strategies
C1	Perform KOH examination (of skin, hair, or nail scrapings), Indian ink and, germ tube test and Slide culture technique.	<ul style="list-style-type: none"> Practical session Discussion Self-learning Presentation 	<ul style="list-style-type: none"> Written exam (mid and final terms and quizzes). Final practical exam Assignment

(D) Alignment Course Intended Learning Outcomes of Transferable Skills to Teaching Strategies and Assessment Strategies:

	Course Intended Learning Outcomes	Teaching strategies	Assessment Strategies
D2	Educate the general public and to assist patients through acceptable customer service interactions	<ul style="list-style-type: none"> Seminars Discussion 	<ul style="list-style-type: none"> Assignment:

V. Course Content:

A – Theoretical Aspect:

NO.	Units/Topics List	Sub Topics List	Number of Weeks	contact hours	Learning Outcomes (CILOs)
1	General Introduction to Medical Mycology & Course Instruction.		1	2	a1,a2,b1
2	-Fungal Importance and its -	Definitions and Fungal terminology - Fungal in the economy -Importance of medical mycology Immunology of the Mycoses	1	2	a1,a2,b1
3	-Fungal Classification and Taxonomy	Geographic Epidemiologic, Morphological, Taxonomical classification Medical classification	1	2	a1,a2

4	Fungal Pathogenesis	-Pathogenesis of Fungal Disease -Primary Fungal Pathogens -Opportunistic Pathogens	1	2	a1,a2,b1
5	General Aspects of Fungal Immunology	Innate Immunity/Nonspecific Immunity Factors that Affect Host-Fungus Interactions Relationship of Natural Immunity to Outcome of Mycoses Importance of CMI (TH1 Immune Responses)	1	2	a1,a2,b1
6	Lab Diagnosis of Fungal infection	-Safety Precautions -Clinical Recognition of Fungal Infections -Conventional Laboratory Diagnosis -Stains, Direct Microscopic Examination, Culture,	1	2	a2,b1
7	Med term		1	2	a1,a2,b1
8	Superficial mycoses:	A-Tinea (Pityriasis) Versicolor; B-Tinea nigra; C-Piedra	1	2	a1,a2,b1
9	Cutaneous mycoses:	Dermatophyte (Dermatomycosis) Various forms of Tinea and their causes, symptoms, diagnosis and treatment: Microsporum spp., Trichophyton spp., and Epidermophyton floccosum Cutaneous mycoses: 1.Tinea capitis 2. Tinea pedis 3. Tinea corporis 4. Tinea cruris 5. Tinea barbae 6. Tinea unguium	2	2	b1,d1

		7. Tinea favosa			
10	Subcutaneous Mycoses:	Eumycotic, Actinomycotic Mycetoma, Phaeohyphomycosis, Chromoblastomycosis, Lobomycosis, Rhinosporidiosis. Diseases caused by dematiaceous (black) fungi. 1. Sporotrichosis . 2. Maudromycosis 3 . Phaeohyphomycosis	2	4	a1,d1
11	Systemic Mycoses:	caused by pathogenic Dimorphic Fungi: -Histoplasmosis, -Blastomycosis, -Coccidioidomycosis, and -Paracoccidioidomycosis.	2	4	a1,a2,d1
12	Opportunistic Mycoses:	caused by pathogenic by Aspergillosis, Zygomycosis, and those caused by pathogenic yeasts Candidiasis & Cryptococcosis. Fungal Allergies and types of Mushroom Poisoning and other Mycotoxins: Prognosis and Treatment Mycotoxicosis and Mycetism	2	4	a1,a2,b1
16	FINAL THEORTICAL				a1,a2,b1
			16	32	

B - Practical Aspect: (if any)

Order	Tasks/ Experiments	Number of Weeks	contact hours	Learning Outcomes
1	Laboratory orientation and Safety instructions	1		c1
2	Introduction to culture techniques, types of media and specific condition of growing Fungi	1		c1
3	Methods of isolation & identification of common contaminant fungal	1		c1
4	Different forms of fungi (Yeast, Buds, Hyphae, & conidia)	1		c1
5	Microscopic exams and characterizing of fungal cultures and making mounts preparation	1		c1
6	Staining techniques and colony morphology of fungi	1		c1
7	MED EXAM	1		c1
8	Superficial mycoses and Dermatophytes Superficial mycoses, Dermatophytes, and Dematiaceous fungi	1		c1
9	Safety Handling & Processing of clinical specimen	1		c1
10	Zygomycetes, Aspergilli, and related hyphomycetes	1		c1
	Culture and speciation of Yeasts	1		c1
	Systemic and opportunistic mycoses General revision	1		c1
Number of Weeks /and Units Per Semester				

V. Teaching Strategies of the Course:

1-	<ul style="list-style-type: none"> Interactive lectures
2-	<ul style="list-style-type: none"> Practical session



3-	• Self leaning
4-	• Discussion
5	• Seminar

VI. Assessment Methods of the Course:

No	Assignment	
1	Written Exams (Short Essays) and Quizzes	a1,a2,b1
2	Written Exams (MCQ)	a1,a2,b1
3	Practical Exams	c1
4	Assignment	d1

VII. Assignments:

No.	Assignments	Week Due	Mark	Proportion of Final Assessment	Aligned CILOs (symbols)
	Assignments		10	10%	d1
1	Midterm Exam	7	15	15%	a1, a2,b1
4	Practical exam	12	25	25%	c1
5	Final Exam	14	50	50%	_a1,a2,b1,
Total					

IX. Learning Resources:

· Written in the following order: (Author - Year of publication – Title – Edition – Place of publication – Publisher).

1- Required Textbook(s) (maximum two).

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|----|---|
| 1- | Warren Levinson, Peter Chin-Honh, Elizabeth A. Joyce, Jesse Nussbaum and Brian Schwartz, Review of Medical Microbiology and Immunology, 2018, 15th edition, McGraw-Hill, ISBN: 978-1-259- 64449-8 |
| 2- | Jawetz, Melnick, & Adelberg's Medical Microbiology, 28e Riedel, Stefan
Published by McGraw-Hill Education, 2019 ISBN 10: 1260012026 ISBN 13: 9781260012026 |

2- Essential References.

- | | |
|----|---|
| 1- | Warren Levinson, Peter Chin-Honh, Elizabeth A. Joyce, Jesse Nussbaum and Brian Schwartz, Review of Medical Microbiology and Immunology, 2018, 15th edition, McGraw-Hill, ISBN: 978-1-259- 64449-8 |
| 2- | Bailey & Scott's Diagnostic Microbiology 15th Edition Patricia M. Tille- February 4, 2021 |

3- Electronic Materials and Web Sites etc.

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| 1- | http://www.asmus.org\ |
| 2- | http://www.phage.org/black09.htm |
| 3- | http://www.microbe.org/microbes/virus_or_bacterium.asp |
| 4- | http://www.microbelibrary.org |
| | http://www.bact.wisc.edu/Bact330/330Lecturetopics |

XI. Course Policies:



1	<p>Class Attendance: Class Attendance is mandatory. A student is considered absent and shall be banned from taking the final exam if his/her absence exceeds 25% of total classes.</p>
2	<p>Tardiness: -If the student dose not attend for more than 6 times, the student will be obligated to withdrew from the course</p>
3	<p>Exam Attendance/Punctuality: No student shall be allowed to the exam hall after 30 minutes of the start time, and shall not leave the hall before half of the exam time has passed.</p>
4	<p>Assignments & Projects: Assignments and projects must be submitted on time. Students who delay their assignments or projects shall lose the mark allocated for the same.</p>
5	<p>Cheating: Cheating is an act of fraud that results in the cancelation of the student's exam or assignment. If it takes place in a final exam, the penalties stipulated for in the Uniform Students' Bylaw (2007) shall apply.</p>
6	<p>Forgery and Impersonation: Forgery/Impersonation is an act of fraud that results in the cancelation of the student's exam, assignment or project. If it takes place in a final exam, the penalties stipulated for in the Uniform Students' Bylaw (2007) shall apply.</p>
7	<p>Other policies: The University official regulations in force will be strictly observed and students shall comply with all rules and regulations of the examination set by the Department, Faculty and University Administration</p>