	Ministry of Higher Education and Scientific Research - Iraq Al-Nahrain University College of Science Applied Pathological Analysis Department	

MODULE DESCRIPTOR FORM
نموذج وصف المادة الدراسية

Module Information معلومات المادة الدراسية					
Module Title	MYCOLOGY			**Module Delivery**	
Module Type	CORE			☒ **Theory** ☒ **Lecture** **x Lab** ☒ **Tutorial** ☐ **Practical** ☒ **Seminar**	
Module Code	APPA2214				
ECTS Credits	7				
SWL (hr/sem)	125				
Module Level	1		**Semester of Delivery**	4	
Administering Department	Applied Pathological Analysis		**College**	College of Science	
Module Leader	Dr. Safa Mujahed Dr. Nawfal Haitham Shakir Dr. Thafar Najim		**e-mail**	Safa.mujahed@nahrainuniv.edu.iq nawfal.haitham@nahrainuniv.edu.iq	
Module Leader's Acad. Title	Lecturer		**Module Leader's Qualification**	Ph. D.	
Module Tutor	Dr. Nawfal Haitham Shakir		**e-mail**	nawfal.haitham@nahrainuniv.edu.iq	
Peer Reviewer Name	Dr. Safa Mujahed		**e-mail**	Safa.mujahed@nahrainuniv.edu.iq	
Scientific Committee Approval Date	18/1/2025		**Version Number**	1.0	
Laboratory Staff	Dr. Mustafa A. Hadid, MSc. Saddam Yahya Diwan, Dr. Evan H. Sulaiman, MSc. Mays Abdulhadi, MSc. Noor Dheyaa Jaafar, MSC. Zeena Murshed, MSc. Eman Adnan Abdulmajeed, MSc. Hadeer Faris				

Relation with other Modules العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	None	**Semester**	
Co-requisites module	None	**Semester**	

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Aims أهداف المادة الدراسية	The course is designed to teach the students: typically revolve around equipping students or healthcare professionals with the knowledge and skills required to understand, diagnose, and manage fungal infections effectively. Below are some common aims of a medical mycology module: 1. Understanding Fungal Biology 2. To provide a comprehensive understanding of the biology, taxonomy, and physiology of medically important fungi. 3. Fungal Pathogenesis 4. To explore the mechanisms of fungal pathogenicity and host-pathogen interactions. 5. To understand how fungi cause disease and adapt to the human host. 6. Clinical Significance 7. To identify the common and emerging fungal pathogens and their clinical significance in human health. 8. To differentiate between superficial, subcutaneous, and systemic fungal infections. 9. Diagnostic Techniques 10. To develop proficiency in diagnostic methods, including microscopic, culture-based, serological, and molecular techniques for fungal infections. 11. To gain knowledge of antifungal agents, their mechanisms of action, and resistance mechanisms.

	12. Epidemiology and Public Health 13. To understand the epidemiology of fungal infections, including their geographical distribution and risk factors. 14. To explore strategies for prevention, control, and outbreak management of fungal diseases.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	Knowing the body molecules and the body systems is of paramount importance for several reasons: 1. Fungal Biology and Taxonomy 2. Pathogenesis and Host Response 3. Clinical Presentation 4. Cognitive/Intellectual Skills, Differential Diagnosis
Indicative Contents المحتويات الإرشادية	Introduction to Medical Mycology • Definition and scope of medical mycology • Overview of fungal biology and taxonomy • Importance of fungi in human health and disease
	Morphology and Classification of Fungi • Yeasts, molds, and dimorphic fungi • Structure and reproduction of fungi (sexual and asexual) • Classification based on morphology and phylogeny
	Pathogenesis of Fungal Infections • Mechanisms of fungal pathogenicity • Host immune response to fungal infections • Factors contributing to fungal diseases (e.g., immunosuppression, environmental exposure)
	Fungal Diseases (Mycoses) • Superficial Mycoses: Tinea (ringworm), dandruff, and skin infections • Cutaneous Mycoses: Dermatophytosis, onychomycosis • Subcutaneous Mycoses: Sporotrichosis, chromoblastomycosis • Systemic Mycoses: Histoplasmosis, coccidioidomycosis, blastomycosis, paracoccidioidomycosis • Opportunistic Mycoses: Candidiasis, aspergillosis, cryptococcosis, mucormycosis
	Fungal Diagnostics • Sample collection and preparation (skin scrapings, blood, tissue) • Microscopic examination (KOH mount, Gram stain, special stains) • Culture methods and identification (Sabouraud's agar, chromogenic media) • Molecular diagnostics (PCR, serology)
	Antifungal Agents and Therapy • Classes of antifungal drugs (e.g., azoles, polyenes, echinocandins) • Mechanisms of action and resistance • Antifungal susceptibility testing • Clinical management of fungal infections

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	Learning Strategies: Encourage students to take organized notes during lectures. Provide practice questions and problem-solving exercises. Participate actively in group discussions and collaborative activities. Make use of textbooks, online resources, and supplementary materials to reinforce learning. Provide constructive feedback on assignments and assessments. Feedback helps students understand their strengths and areas for improvement. **Teaching Strategies:** - Encourage students to actively engage with the material through discussions and group activities to promote deeper understanding. - Deliver well-structured lectures that provide a clear overview of the topic. - Incorporate videos, animations, and interactive simulations to illustrate complex biological processes. - Assign readings or video lectures as homework and use class time for discussions and activities.

Student Workload (SWL) الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	47	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	3
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	53	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	3.5
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	100		

Module Evaluation تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	4	10% (10)	3, 7, 10, 12	LO #1, 2, 10 and 11
	Assignments	2	10% (10)	2, 11	LO #1, 3, 6,8, and 12
	Projects / Lab.	1	10% (10)	Continuous	
	Report/ Lab.	1	10% (10)	7	LO #1, 5 and 9
Summative assessment	Midterm Exam	2 hr	10% (10)	7	LO # 1-7
	Final Exam	2hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)

المنهاج الاسبوعي النظري

Week	Material Covered
Week 1	Introduction to the (Fungi) and Outline of the Major Taxa , Kingdom Myceteae (fungi)
Week 2	General characteristic of Fungi, Importance of Fungi, Classification of Fungi
Week 3	Structure of Fungi: Fungal thallus (Hypha), Yeast cells Dimorphic fungi
Week 4	Reproduction of Fungi, Sexual reproduction, Asexual reproduction (somatic or vegetative
Week 5	Medical mycology, Mycoses, classification of mycosis according to the levels initia colonized. Medically important fungi: *Aspergillus* species, *Candida* species, *Cryptococc* species, other yeasts
Week 6	Medical mycology, Mycoses, classification of mycosis according to the levels initially colonized. Medically important fungi: Dematiaceous fungi, The dermatophytes, Endemic dimorphic fungi, Hyaline moulds, Mucoraceous moulds, *Pneumocystis jirovecii*
Week 7	Midterm - exam
Week8	Superficial mycoses
Week9	Cutaneous mycoses
Week 10	Subcutaneous mycoses
Week 11	Systemic mycoses due to primary pathogens
Week 12	Systemic mycoses due to opportunistic pathogens
Week13	Living mode of fungi, Specimen collection and transport, Cultivation of fungi, Environmental conditions suitable for fungi cultivation.
Week 14	Fungal culture media, Processing of fungal cultures, Direct Exam of Specimens
Week15	Final exam

Delivery Plan (Weekly Lab. Syllabus) المنهاج الاسبوعي للمختبر	
Weeks	**Material Covered**
Week 1	**Specimen collection and transport, isolation of fungi from different resources**
Week 2	**Fungal culture media**
Week 3	**Processing of fungal cultures**
Week 4	**Yeast identification methods**
Week 5	**Mold identification methods**
Week 6	**Safety in mycology laboratory**
Week 7	**Direct exam of specimens/ Potassium hydroxide prep/KOH**
Week 8	**Direct exam of specimens/ Calcofluor white stain**
Week 9	**Mid term exam**
Week 10	**Direct exam of specimens/ India ink – cryptococcus detection in CSF**
Week 11	**Examination of fungi in fixed tissue/ Periodic acid Schiff**
Week 12	**Examination of fungi in fixed tissue/ Mucicarmine [mucin] stain**
Week 13	**Examination of fungi in fixed tissue/ Hematoxylin and eosin stain**
Week 14	**Slides on / Medically important fungi: Aspergillus species, Candida species, Cryptococcus species, other yeasts, Dematiaceous fungi, The dermatophytes, Endemic dimorphic fungi, Hyaline moulds, Mucoraceous moulds, Pneumocystis jirovecii**
Week 15	**Final exam**

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	**Available in the Library?**
Required Texts	Christopher C. Kibbler, Oxford Textbook of Medical Mycology, 2018, ISBN 978-0-19-875538-8	No
Recommended Texts	Textbook of Medical Mycology, Hamzia Ali Ajah ,2018	No
Websites	https://academic.oup.com/book/41270	

APPENDIX:

GRADING SCHEME مخطط الدرجات				
Group	**Grade**	التقدير	**Marks (%)**	**Definition**
Success Group (50 - 100)	**A** - Excellent	امتياز	90 - 100	Outstanding Performance
	B - Very Good	جيد جدا	80 - 89	Above average with some errors
	C - Good	جيد	70 - 79	Sound work with notable errors
	D - Satisfactory	متوسط	60 - 69	Fair but with major shortcomings
	E - Sufficient	مقبول	50 - 59	Work meets minimum criteria
Fail Group (0 – 49)	**FX** – Fail	مقبول بقرار	(45-49)	More work required but credit awarded
	F – Fail	راسب	(0-44)	Considerable amount of work required

Note:

NB Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.



ملاحظة: هذا النموذج تم وضعه وتقديمه من قبل مديرية ضمان الجودة في وزارة التعليم العالي والبحث العلمي