Course Specification
(Bachelor)

Course Title:	Mycology
Course Code:	BIOL 333
Program:	Bachelor of Science (B.Sc) in Biology
Department:	Biology
College:	College of Science
Institution:	Majmaah University
Version:	2
Last Revision Date:	01.03.1444H; Ref #4

Table of Contents

A. General information about the course:

1. Course Identification

1. Credit hours: 3 (2+2) hours					
Equivalent to **4.5 ECTS** credits					
2. Course type					
A.	☐University	☐College	☒ Department	☐Track	☐Others
B.	☒ Required		☐Elective		
3. Level/year at which this course is offered: (5 / Second)					
4. Course general Description:					
This course deals with the basic concepts of Fungi and their classification. This course explains the mechanism of structure, growth and reproduction of various fungi. This course explains economic importance of fungi in agriculture and industries. This course also help to distinguish the different fungi based on colony and microscopic morphology					
5. Pre-requirements for this course (if any)**:**					
BIOL 231, General Microbiology					
6. Co-requirements for this course (if any)**:**					
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7. Course Main Objective(s):					
The main objective of this course to understand the various types of fungi and their economic importance.					

2. Teaching mode (mark all that apply)

No	Mode of Instruction	Contact Hours	Percentage
1	Traditional classroom	60	100%
2	E-learning		
3	Hybrid • Traditional classroom • E-learning		
4	Distance learning		

3. Contact Hours (based on the academic semester)

No	Activity	Contact Hours
1.	**Lectures**	30
2.	**Laboratory/Studio**	30
3.	**Field**	
4.	**Tutorial**	
5.	**Others (specify)**	
Total		60

Workload (based on the academic semester)

No	Activity	Work Load /Hours
1.	Contact hours	60
2.	Self-study (Assignments, quizzes, reports, Discussions, Library, research)	60
	Total Workload	120
Equivalent to **ECTS credit points**		**4.5**

B. Course Learning Outcomes (CLOs), Teaching Strategies and Assessment Methods

Code	Course Learning Outcomes	Code of CLOs aligned with program	Teaching Strategies	Assessment Methods
1.0	Knowledge and understanding			
1.1	Describe the types of fungi reproduction and their spores	K3	Lectures, Group discussion	Quizzes, Midterm and final exams Electronic exam
1.2	Diagram of structure of hyphae and different type of fungal spores	K3	-do-	-do-
2.0	Skills			
2.1	Summarize the different types of sexual and asexual reproduction of fungi, plant and animal diseases	S2	Lectures, Group discussion Brain storming	Quizzes, Midterm and final exams Electronic exam
2.2	Predict a name of fungi based on spore and structure, uses of fungi	S2	-Do-	-do-

Code	Course Learning Outcomes	Code of CLOs aligned with program	Teaching Strategies	Assessment Methods
2.3	Demonstrate fungal media preparation, staining methods	S4	Practical sessions	Practical exam Report
2.4	Identification of fungi based on colony and spore morphology, Mushroom cultivation	S4	-do-	-do-
3.0	Values, autonomy, and responsibility			
3.1	Effectively plan and prepare the mycology report	V2	Team work Reports	Assignment submission, Oral presentation
3.2	Autonomously organize and present the reports	V2	-do-	-do-

C. Course Content

No	List of Topics	Contact Hours
1.	Introduction to Mycology – Definitions, important features; Hyphal forms, Reproduction, Life cycle pattern	2
2.	Hyphal structure, Types of reproduction (Sexual and Asexual), Types of spores	2
3.	Classification of Fungi: Based on colony morphology, reproduction. Systemic classification – Groups of fungi	6
4.	Chytridiomycota: (Chytrids) Betrachochytrium dendrobatidis,	2
5.	Zygomycota – Mucor, Rhizopus, Pilobolus	4
6.	Ascomycota – Yeast and molds; Ascobolus, Peziza, Aspergillius, Penicillum	4
7.	Basidiomycota – *Agaricus*, *Polyporus*, *Puccinia*,	4
8.	Anamorphic (Mitosporic) fungi or Deuteromycetes; Imperfect yeasts : *Candida albicans*, *Cryptococcus*	2
9.	Medical Mycology – Human and animal diseases, Antifungal drugs	2
10.	Economic importance of Fungi - Bio fertilizers, Antibiotics, Ethanol, Organic acids, Enzymes production, Single-cell Protein, Mushroom cultivation	2
	Total	30

Practical's

No	List of Topics	Contact Hours
1.	Lab safety in Mycology lab	2
2.	Types of Fungal media	2

3.	Isolation of Fungi from spoiled vegetables and fruits	4
4.	Isolation of Fungi from food materials	2
5.	Isolation of fungi from air samples	2
6.	Identification fungi – LPCB staining, Slide culture technique, Adhesive tape technique	4
7.	Colony and microscopic morphology of filamentous fungi	4
8.	Microscopic observation of Yeast	2
9.	Microscopic observation of Morchella	2
10.	Microscopic observation of Cyathus – fruiting body	2
11.	Microscopic observation of Coprinus, *Puccinia graminis – spores*	2
12.	Mushroom cultivation	2
Total		30

D. Students Assessment Activities

No	Assessment Activities *	Assessment timing (in week no)	Percentage of Total Assessment Score
1.	Home work/Group project	2	5
2.	Mid exam (1)	5 – 6	10
3.	Quiz	8	5
4.	Mid exam (2)	10-11	10
5.	E. Exam	13	10
6.	Practical Exam	14	20
7.	Final Exam	15-16	40
...	**Total**		**100**

*Assessment Activities (i.e., Written test, oral test, oral presentation, group project, essay, etc.).

E. Learning Resources and Facilities

1. References and Learning Resources

Essential References	Short notes on Mycology, Dr. Vijayakumar – Note book, Majmaah University
Supportive References	• Illustrated Genera of Fungi - Miguel Ulloa, E. Aguirre-Acosta - APS Press (2019) • Illustrated Dictionary of Mycology - Miguel Ulloa, Richard T. Hanlin - American Phytopathological Society (2000) ISBN-10: 0890542570; ISBN-13: 978-0890542576 • Introductory Mycology, 4th Edition - C.J. Alexopoulos, C.W. Mims, M. Blackwell - Wiley (2007) ISBN-10: 8126511087; ISBN-13: 978-8126511082

	• An Introduction to Mycology - K. R. Aneja - New Age International Private Limited; Second edition (2015) ISBN-10: 8122437966; ISBN-13: 978-8122437966 • The Fungi, 3rd Edition - Michael J. Carlile, Sarah C. Watkinson, G.W. Gooday - Academic Press (2001) ISBN-10: 0127384464; ISBN-13: 978-0127384467 • The Fifth Kingdom, 3rd Edition - Bryce Kendrick - Focus Publishing (2000) ISBN-10: 1585100226; ISBN-13: 978-1585100224 • Fungal Biology, 4th Edition - J.W. Deacon - Blackwell Publishing (2006) ISBN-10: 1405130660; ISBN-13: 978-1405130660 • Modern Mycology, 3rd Edition - J.W. Deacon - Blackwell Science (1997) ISBN-10: 0632034272; ISBN-13: 978-0632034276
Electronic Materials	• www.drfungus.org • www.mycobank.org • www.mycologyonline.org
Other Learning Materials	NA

2. Required Facilities and equipment

Items	Resources
facilities (Classrooms, laboratories, exhibition rooms, simulation rooms, etc.)	Classroom and fully equipped laboratory facilities are available
Technology equipment (projector, smart board, software)	E.podium and smart board facilities are available
Other equipment (depending on the nature of the specialty)	Nil

F. Assessment of Course Quality

Assessment Areas/Issues	Assessor	Assessment Methods
Effectiveness of teaching	Students	Direct assessment
Effectiveness of Students assessment	Program Leader	Direct assessment
Quality of learning resources	Students	Indirect assessment
The extent to which CLOs have been achieved	Faculty	Direct assessment
Other		

Assessors (Students, Faculty, Program Leaders, Peer Reviewer, Others (specify)

Assessment Methods (Direct, Indirect)

G. Specification Approval

COUNCIL /COMMITTEE	Biology Department Council
REFERENCE NO.	7
DATE	04/04/1446 [7TH OCTOBER 2024]