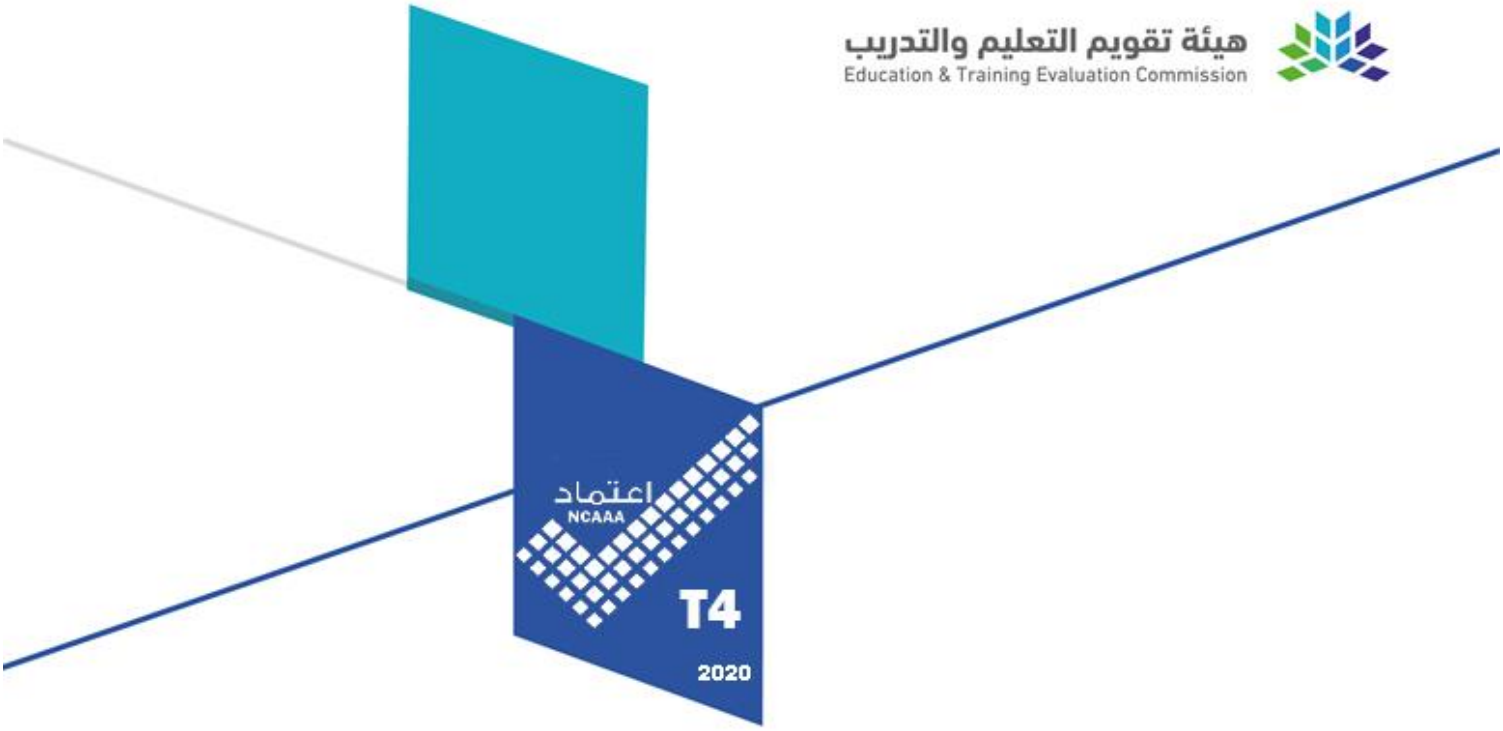
هيئة تقويم التعليم والتدريب
Education & Training Evaluation Commission



Course Specifications

Course Title:	**Yeast**
Course Code:	**MBIO 349**
Program:	**Microbiology (B.sc)**
Department:	**Botany and Microbiology**
College:	**Science**
Institution:	**King Saud University**

Table of Contents

A. Course Identification

1. Credit hours:	2 (1+2)
2. Course type	
a.	University ☐ College ☐ Department ■ Others ☐
b.	Required ■ Elective ☐
3. Level/year at which this course is offered:	**Fourth level**
4. Pre-requisites for this course (if any)**: MBIO 270**	
5. Co-requisites for this course (if any)**:**	

6. Mode of Instruction (mark all that apply)

No	Mode of Instruction	Contact Hours	Percentage
1	**Traditional classroom**	30	100%
2	**Blended**		
3	**E-learning**		
4	**Correspondence**		
5	**Other**		

7. Actual Learning Hours (based on academic semester)

No	Activity	Learning Hours
Contact Hours		
1	**Lecture**	15
2	**Laboratory/Studio**	30
3	**Tutorial**	
4	**Others** (specify)	
	Total	30
Other Learning Hours*		
1	**Study**	
2	**Assignments**	
3	**Library**	
4	**Projects/Research Essays/Theses**	
5	**Others** (specify)	
	Total	40

***** The length of time that a learner takes to complete learning activities that lead to achievement of course learning outcomes, such as study time, homework assignments, projects, preparing presentations, library times

B. Course Objectives and Learning Outcomes

1. Course Description

Historical review of yeast - Fine structure of the yeast cell- Yeast characterization and its classification- Yeast reproduction- Asexual reproduction as budding, fission and blastospore formation- Sexual reproduction in yeast - Nutritional requirement of yeast - Physical and Chemical factors affecting yeast growth - Yeast identifications, Sporogenous yeast, Examples of ascomycetes yeast, Examples of basidiomycestes yeast- Yeast like fungi. Asporogenous yeast (false yeast) with example of Candida albicans- yeast Fermentation and their applications- Yeast and food industry (Bakery – yogurt)- Yeast and chemical industry (winger, ethanol, glycerin productions- Yeast and single cell protein – Lipids production – and finally, Yeast and medical field, Yeast and diseases

2. Course Main Objective

This is fundamental course of yeast for undergraduated students in Botany and Microbiology Department. In this class, the student will become familiar with fundamentals of yeast, yeast cell Structure – Yeast characterization and its classification, Yeast reproduction- Asexual reproduction as budding, fission and blastospore formation, Sexual reproduction in yeast. The student will be also able to identify and classify yeast as division *Ascomycetes* (Sporogenous yeast) with their characteristics, Non sporogenous yeast as yeast related to division Deutromycetes., their economic importance,. Investigate the Nutritional requirement of yeast with spotting in Physical and Chemical factors affecting yeast growth. Students will be able to differentiate between sporogenous yeast as (*Saccharomyces service*) and nonsporogenous yeast ***as*** *candida albicans.* Also they studied yeast fermentation and their applications: Yeast and food industry (as Bakery – yogurt production),Yeast and chemical industry (as winger, ethanol, glycerin productions). Yeast and single cell protein – Lipids production, Yeast with medical field, Yeast and diseases

The lab. experiments, assignments, projects, and other activities in this course are designed to help students to learn the principles of yeast identification, how to isolate, examine, identify and classify the different types of yeast. The students will able to report their presentation topic clearly and concisely, both in oral and written form. Students are expected to show up for class on time and be prepared for the class activities, work diligently, ask questions and participate in class discussions.

3. Course Learning Outcomes

	CLOs	Aligned PLOs
1	**Knowledge:**	
1.1	By the end of the course, the student will be able to identify the different yeast groups- sporogenous yeast and Asporogenous yeast	K2
1.2	By the end of the course, the student will be able to recall the cultivation methods of yeast under sterilized conditions	K1
1.3	By the end of the course, the student will be able to list the effect of chemical compounds on yeast growth	K4
2	**Skills :**	
2.1	By the end of the course, the student will be able to prepare the different types of yeast cultures (True and False yeast) and isolate and Purify yeast from different sources (soil, fruits, vegetable)	S1
2.2	By the end of the course, the student should be able to involve in research work, analyze the research data, design, and write lab report.	S2
3	Values:	
3.1	At the end of the course, the student will have the ability to self-learn, take responsibility, work in a team spirit and time management.	V1

C. Course Content

No	List of Topics	Contact Hours
1	Historical review of yeast - Fine structure of the yeast cell	2 (1+0+2)
2	Yeast characterization and its classification	2 (1+0+2)
3	Yeast reproduction- Asexual reproduction as budding, fission and blastospore formation	2 (1+0+2)
4	Yeast reproduction - Sexual reproduction in yeast and ascus formation	2 (1+0+2)
5	Nutritional requirement of yeast	2 (1+0+2)
6	Physical factors affecting yeast growth	2 (1+0+2)
7	Chemical factors affecting yeast growth	2 (1+0+2)
8	Yeast identifications, Sporogenous yeast, Examples of ascomycetes yeast (Saccharomyces crevice) Examples of basidiomycestes yeast-	2 (1+0+2)
9	Yeast like fungi. Asporogenous yeast (false yeast) with example of Candida albicans-	2 (1+0+2)
10	Yeast Fermentation and their applications in food industry (Bakery – yogurt)-	4 (2+0+4)
11	Yeast Fermentation and their applications in chemical industry (winger, ethanol, productions)	4 (2+0+4)
	Yeast and single cell protein	2 (1+0+2)
12	Yeast and medical field - Yeast and diseases	2 (1+0+2)
Total		30

D. Teaching and Assessment

1. Alignment of Course Learning Outcomes with Teaching Strategies and Assessment Methods

Code	Course Learning Outcomes	Teaching Strategies	Assessment Methods
1.0	**Knowledge**		
1.1	By the end of the course, the student will be able to identify the different yeast groups- sporogenous yeast and Asporogenous yeast	lecture	Written exams, Quizzes
1.2	By the end of the course, the student will be able to recall the cultivation methods of yeast under sterilized conditions	Practical	practical exams
1.3	By the end of the course, the student will be able to list the effect of chemical compounds on yeast growth	lecture	Written exams
2.0	**Skills**		
2.1	Prepare the different types of yeast cultures (True and False yeast)	Practical experiments	Practical exam
2.2	By the end of the course, the student will be able to involve in research work, analyze the research data, design, and write lab report.	Project – small group work - group discussion	Performance based assessment using rubrics
3.0	Values		
3.1	At the end of the course, the student will have the ability to self-learn, take responsibility, work in a team spirit and time management.	Project – small group work-group discussion	Performance based assessment using rubrics

2. Assessment Tasks for Students

#	Assessment task*	Week Due	Percentage of Total Assessment Score
1	1st midterm exam	5	15
2	2nd midterm exam	9	15
3	Final practical exam	13	30
4	Final exam	16	40
5			
6			
7			
8			

***Assessment task** (i.e., written test, oral test, oral presentation, group project, essay, etc.)

E. Student Academic Counseling and Support

Arrangements for availability of faculty and teaching staff for individual student consultations and academic advice :

- Website
- Office hours
- Practical support

F. Learning Resources and Facilities

1.Learning Resources

Required Textbooks	1-Biology and activites of Yeasts. F.A.Skinner. 1980.. 2- The Biology Of Yeast . D.R. Berry. 1982 3- yeast science by Dr. Abdullah Msaad Alfalih. .Al Obeikan,2022
Essential References Materials	1 Biochemistry And Genetics Of yeasts. M. Bacila.1978 2 The Yeasts. Vol.3. A.H. Rose. 1970**.**
Electronic Materials	www.jb.asm.org www. Sciencedirect.com - Nature.com
Other Learning Materials	Microsoft office

2. Facilities Required

Item	Resources
Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.)	Teaching Class (25 student per class) Lab. (25 student per lab)
Technology Resources (AV, data show, Smart Board, software, etc.)	Computer Printer Scanner Offer head projector Smart Board
Other Resources	Chemicals Disinfectant chemicals

Item	Resources
(Specify, e.g. if specific laboratory equipment is required, list requirements or attach a list)	Cultural Media Cloves Petri dishes Incubators Microscopically slides Safety materials

G. Course Quality Evaluation

Evaluation Areas/Issues	Evaluators	Evaluation Methods
Student feedback	Instructors	Evaluation questioner Final exam results
Evaluation of Teaching by the Instructor	Students, Peer reviewer	Self-evaluation External annual evaluation
Processes for Improvement of Teaching	Program leader and Faculty	Evaluation of reports Revision of student results between previous semester Workshop
Standards of Student Achievement	Instructors	Evaluation of homework and exams

Evaluation areas (e.g., Effectiveness of teaching and assessment, Extent of achievement of course learning outcomes, Quality of learning resources, etc.)
Evaluators (Students, Faculty, Program Leaders, Peer Reviewer, Others (specify)
Assessment Methods (Direct, Indirect)

H. Specification Approval Data

Council / Committee	**Academic Accreditation and Evaluation Committee**
Reference No.	Update-1443
Date	20/09/1443 H