



SYLLABUS

Course Code	Course Num.	Course Name	Credit Hours	Lec.	Lab.	Tut.	Private study	Pre-requisites	Course Level	Teaching Language
BIO	446	Medical and Industrial Microbiology	4	3	2	0	4-6	BIO 345	8	English

A. Course Description

This course has titles which will introduce medical and industrial microbiology. So, this course involves to classify the types of bacteria and fungi that cause human diseases, symptoms of bacterial and fungal infection, sources of infection, transmission and diagnostic methods, the production of vitamins and enzymes, the most important characteristics of microbes in food, various sources of food contamination, food corruption and food poisoning.

B. Course Outcomes

It is expected to be after the study of this course the student be able:

1. To describe the relationship between human and microbiology.
2. To classify the types of bacteria that cause human diseases.
3. To classified types of fungi that cause human diseases.
4. To comparing the bacteria, viruses and fungi in diseases.
5. To determine sources of infection and transmission.
6. To determine the diagnostic methods.
7. To remember the means of prevention to be followed.
Assisting student to understand economic, environmental and social importance of industrial microbiology as follow:
8. To show the multiplicity of industrial properties of microbes.
9. To remember the importance of micro-biology in the production of vitamins.
10. To describe the use of micro-biology in the production of enzymes.
11. To define the most important qualities of microbes in food.
12. To recognize the multiplicity of different sources of food contamination.
13. To compare the causes of food poisoning

C. References:

Required Textbook

- *Patrick R. Murray Medical Microbiology: with Student Consult Online Access*, 7th Edition ISBN-13: 978-0323086929.
- *Michael T. Madigan Brock Biology of Microorganisms* (14th Edition) ISBN-13: 978-0321897398.
- *Michael J. Waites Industrial Microbiology: An Introduction*, 1st Edition ISBN-13: 978-0632053070.

Other references:

- *Michael J. Waites, Neil L. Morgan, John S. Roche, Gary Higton; Industrial Microbiology: An Introduction* (2001) Edited Wiley. Blackwell .ISBN:978-0-632-05307.



Course Website: Google Classroom Webpage: <http://www.imamm.org/>

D. Topics Outline

D1. Lectures topics

1. The relationship between Human and Microbiology.
2. Classify the types of bacteria that cause human diseases.
3. Classified types of fungi that cause human diseases.
4. Symptoms of bacterial infection.
5. Symptoms of fungal infection.
6. Sources of infection, transmission and Diagnostic methods.
7. Means of prevention, health and right ways to be followed.
8. Estimate growth standards general ways for the development and use of various media & Industrial properties of microbes.
9. The production of vitamins and enzymes.
10. Antibiotic Production & The production of inorganic acids.
11. The most important characteristics of microbes in food.
12. Various sources of food contamination.
13. Food corruption & food poisoning.
14. Significant changes in milk and microbes that caused.

D2. Laboratories topics

1. Identify Selective media to isolate pathogenic micro-organisms.
2. Clotting enzyme and tests with coagulase enzyme.
3. Reactions of decomposition of red blood cells on blood agar & Oxidase test on pathogenic micro-organisms.
4. The study of anaerobic bacteria forming spores.
5. Isolate and identify of some pathogenic fungi of the skin.
6. The fermentation of carbohydrates.
7. Alcohol production.
8. The production of vinegar.
9. Production of baker's yeast.
10. Fermentation lactic acid-of microbes Producing organic acid.
11. Production vegetable protein
12. Production of vital vaccines.

E. Office Hours

Office hours give students the opportunity to ask in-depth questions and to explore points of confusion or interest that cannot be fully addressed in class



F. Exams & Grading System

The semi-official dates of the exams for this course are:

- **Midterm 1:** 6th or 7th week.
- **Midterm 2:** 11th or 12th week.
- **Quizzes & Homeworks:** During the semester.
- **Final lab. Exam :** 14th or 15th week.
- **Final Exam:** 16th week.

Your course grade will be based on your semester work as follows:

Midterm 1: 15 %	Midterm 2: 15 %	Final lab. Exam: 20%	Final Exam: 40 %
Quizzes, Homework, Attendance & Participation:10 %			

The grading distribution:

A+	A	B+	B	C+	C	D+	D	F
[95, 100]	[90, 95]	[85, 90]	[80, 85]	[75, 80]	[70, 75]	[65, 70]	[60, 65]	[0, 60]

Student workload

#	Teaching/Learning activities	Contact hours	Frequency	Total contact hours	Self-study hours	Total self-study hours	Student learning time
5	Lecture	3	15	45	2	30	75
2	Tutorial	0	0	0	0	0	0
0	Lab\practical	2	15	30	1	15	45
5	Homework	0	4	0	2	8	8
4	Quiz	0.5	2	1	1	2	3
6	Midterm	1.5	2	3	5	10	13
7	Final Exam	2	1	2	12	12	14
Total				81		77	158



G. Student Attendance/Absence

Only three situations will be considered as possible excused absences:

- Occurrence of a birth or death in the immediate family will be excused. (“Immediate family” is defined by the University as spouse, grandparents, parents, brother, or sister).
- Severe illness in which a student is under the care of a doctor and physically unable to attend class will be excused. Students are not excused for a doctor's appointment. Do not make appointments that conflict with rehearsals. Notes from the University Health Center will be accepted.

[Executive Rules for Study Regulations and Exams](#)

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