



University of Management & Technology
School of Science
Department of Life Sciences

MB-401 Food Microbiology

Lecture Schedule	Monday and Thursday	Semester	Fall 2021
Pre-requisite	A-Level/ F.Sc.	Credit Hours	3+1
Instructor(s)	Miss Hareem Mohsin	Contact Moodle link	hareem.mohsin@umt.edu.pk
Office	New Faculty Hall	Office Hours	Displayed on Moodle
Objectives	<ul style="list-style-type: none"> • To learn about the relevance of microbes with food industries • To learn about food related microorganism. • To learn about microbial food spoilage and its control. 		
Expected Outcomes	<ul style="list-style-type: none"> • Explain the role and significance of food microbiology, techniques involved and applications. • Discuss various beneficial and harmful effects caused by food related microbes and their respective involvement in food industry and food spoilage. • Apply the learned concepts and techniques regarding LAB, food pathogens and industrial processes. 		
Course outlines	<ul style="list-style-type: none"> • Introduction and scope of food microbiology • Food related microorganisms their classification, genetics and biochemistry. • Sources of microorganism in food. • Microbial interaction, attachment and growth. • Factors influencing microbial growth in food environment. • Lactic acid producing bacteria (LAB) in food and their important metabolites: bacteriocins, lantibiotics, probiotics and enzymes. • Applications of LAB in food technology. • Traditional fermented food; microbiology of fermented foods 		

	<ul style="list-style-type: none"> • Microbial food spoilages; Factors and microbial metabolites. • Food borne pathogens, infection, toxification and indicators of food borne pathogens. • Control of microbes in food by physical, chemical and biological methods. • Introduction to hurdle technology. • HACCP.
Text book & Reference book(s)	<ol style="list-style-type: none"> 1. Ray, B. 2007, Fundamental Food Microbiology, 4th edition, CRS Press New York. 2. Montville, T. J.& K. R. Matthews. 2008. Food Microbiology: An Introduction, 2nd Edition ASM Press, USA. 3. Weidmann M. and W. Zhang. 2011 Genomic of food borne bacterial pathogens (Food Microbiology and food Safety) 1st Edition. Springer, ISBN-13: 978-14419765857. 4. El Mansi, E. M. T. et al. 2011. Fermentation, Microbiology and Biotechnology. CRC Press.
Grading Policy	<ul style="list-style-type: none"> • Quizzes 10% • Assignments 10% • Midterm 25% • Final term 35% • Practical 20%

Course Schedule

Week	Lecture #	Topics
1	1 2	<ul style="list-style-type: none"> • Introduction and Scope of Food Microbiology • Food related Microorganisms: Classification
2	1 2	<ul style="list-style-type: none"> • Food related Microorganisms: Genetics • Biochemistry
3	1 2	<ul style="list-style-type: none"> • Sources of Microorganisms in food • Microbial Interaction
4	1 2	<ul style="list-style-type: none"> • Microbial attachment, and growth • Factors influencing microbial growth in food environment
5	1 2	<ul style="list-style-type: none"> • Lactic acid producing bacteria (LAB) in food and their important metabolites: bacteriocins, lantibiotics, probiotics and enzymes.
6	1 2	<ul style="list-style-type: none"> • Probiotics and Enzymes • Applications of LAB in food technology
7	1 2	<ul style="list-style-type: none"> • Applications of LAB in food technology
8	1 2	<ul style="list-style-type: none"> • MIDTERMS
9	1 2	<ul style="list-style-type: none"> • Traditionally fermented foods • Microbiology of fermented foods
10	1 2	<ul style="list-style-type: none"> • Microbial food spoilage: Factors and microbial metabolites
11	1 2	<ul style="list-style-type: none"> • Food borne pathogens, infection, toxification and indicators of food borne pathogens.
12	1 2	<ul style="list-style-type: none"> • Control of microbes in food by physical, chemical and biological methods.
13	1 2	<ul style="list-style-type: none"> • Introduction to HURDLE technology
14	1 2	<ul style="list-style-type: none"> • HACCP
15	1 2	<ul style="list-style-type: none"> • Final Term