



**Jordan University of Science and Technology**  
**Faculty of Agriculture**  
**Nutrition & Food Technology Department**

NF754 Advanced Food Microbiology

First Semester 2020-2021

**Course Catalog**

3 Credit Hours. The trajectory of food microbiology, characteristics of predominant microorganisms in food, types of microbial foodborne diseases; intoxication, infection and toxicoinfection, gram negative foodborn pathogen bacteria, gram positive foodborn bacteria and stress, adaptation and food safety.

**Text Book**

<b>Title</b>	Fundamental food microbiology
<b>Author(s)</b>	Bibek, R. (2003)
<b>Edition</b>	3rd Edition
<b>Short Name</b>	1
<b>Other Information</b>	CRC Press New York Washington, D.C.

**Course References**

Short name	Book name	Author(s)	Edition	Other Information
2	Modern Food Microbiology	Jay, J. M., Loessner, M. J., Golden, D. A. (2005)	7th Edition	Springer-Science+Business Media, New York USA.
3	Practical Food Microbiology	Roberts, D., Greenwood, M. (2003)	3rd Edition	Blackwell Publishing Ltd, Malden, Massachusetts, USA.
4	Introduction to the Microbiology of Food Processing,	USDA, (2012)	1st Edition	United States Department of Agriculture Food Safety and Inspection Service

**Instructor**

Name	<b>Dr. Sana Gammoh</b>
Office Location	C4 level 3
Office Hours	

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Class Schedule & Room
Section 1: Lecture Time: Mon, Wed : 11:30 - 13:00 Room: منصة الكترونية

Tentative List of Topics Covered		
Weeks	Topic	References
Weeks 1, 2, 3, 4	1) The Trajectory of Food Microbiology	
Weeks 5, 6, 7	2) Gram-Negative Foodborn Pathogen Bacteria	
Weeks 8, 9, 10	3) Gram-Positive Foodborn Pathogen Bacteria	
Weeks 11, 12, 13	4) Stress Response	

Mapping of Course Outcomes to Program Student Outcomes	Course Outcome Weight (Out of 100%)	Assessment method
1) Learn about the primary sources of microorganisms found in foods and the intrinsic and extrinsic parameters of foods that affect microbial growth.	10%	
2) Learn about the basic information on the physiological, biochemical, and biological characteristics of diverse types of food, and the microbial interactions in food environments and microbial physiology, biochemistry, genetics, and immunology.	10%	
3) Learn about the identification and control of spoilage bacteria associated with food processing and preservation methods.	10%	
4) Learn about the methods to detect emerging foodborne pathogenic bacteria from contaminated foods	10%	
5) Learn about the intrinsic and extrinsic parameters of foods that affect the microbial growth considering those characteristics of plants and animal tissue that affect the growth of microorganisms.	10%	
6) Learn about foodborne diseases in humans result from the consumption of either food or water contaminated with viable pathogenic bacterial cells, including Intoxication, Infection and Toxicoinfection.	10%	
7) Learn about Gram-Negative foodborn pathogen bacteria (Salmonella Species, Campylobacter Species, Enterohemorrhagic, Escherichia coli, Yersinia enterocolitica, Shigella Species, Vibrio Species and Brucellosis) including sources, transmission, immediate symptoms, long term consequences, onset time, MID and length of disease.	10%	

8) Learn about Gram-Positive foodborne pathogen bacteria ( <i>Listeria monocytogenes</i> , <i>Staphylococcus aureus</i> , <i>Clostridium botulinum</i> , <i>Clostridium perfringens</i> and <i>Bacillus cereus</i> ) including sources, transmission, immediate symptoms, long term consequences, onset time, MID and length of disease.	10%	
9) Learn about the stress factor or condition that adversely affects microbial growth or survival and the many food processing treatments that are considered stresses such as physical treatments, addition of chemicals, biological stresses.	10%	
Learn about stress response, the outcomes of microbial response to stress.	10%	

<b>Relationship to Program Student Outcomes (Out of 100%)</b>				
SLO1	SLO2	SLO3	SLO4	SLO5

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