



**Jordan University of Science and Technology**  
**Faculty of Science & Arts**  
**Biotechnology & Genetic Engineering Department**

BT431 Microbial Biotechnology

First Semester 2018-2019

**Course Catalog**

3 Credit Hours. This course traces the development of modern biotechnology from its origins in traditional fermentation processes to strain selection and development of recombinant microbes for industrial applications. Industrial microorganisms, substrate for industrial fermentation, methods of fermentation, product recovery, cell immobilization, and commercial exploitation of industrial microorganisms to produce beer, wine, organic acids, amino acids, enzymes, vitamins, antibiotics and single cell protein will be emphasized

**Text Book**

<b>Title</b>	Modern food microbiology
<b>Author(s)</b>	Jay ,J.M
<b>Edition</b>	5th Edition
<b>Short Name</b>	1
<b>Other Information</b>	

**Course References**

Short name	Book name	Author(s)	Edition	Other Information
2	Microbial Biotechnology	Glazer ,A.N. and Nikaido, H	2nd Edition	
3	Food Microbiology	Frazier ,W.C. and Westhoff, D.C	2nd Edition	
4	Microbiology	Prescott,L.M.,Harley,J.P.and Klein,D.A	10th Edition	

**Instructor**

Name	<b>Prof. Abdul-Karim Al-Sallal</b>
Office Location	PH1L1

Office Hours	Sun : 10:30 - 11:30 Mon : 10:30 - 11:30 Tue : 10:30 - 11:30 Thu : 10:30 - 11:30 Thu : 11:30 - 12:30 Thu : 12:30 - 13:30
Email	salla15@just.edu.jo

Class Schedule & Room
Section 1: Lecture Time: Sun, Tue : 11:30 - 12:30 Room: NF38

Prerequisites		
Line Number	Course Name	Prerequisite Type
932310	BIO231 General Microbiology	Prerequisite / Study

Tentative List of Topics Covered		
Weeks	Topic	References
Weeks 1, 2	Introduction; Food as a substrate for microorganisms	
Weeks 3, 4	Factors affecting the growth of microorganisms in food- intrinsic and extrinsic	
Weeks 5, 6	Food contamination ,spoilage and preservation. Diseases and food	
Weeks 7, 8	Microbiology of fermented food. Dairy , bread	
Weeks 9, 10	Microbial biotechnology : Human therapeutics , Agriculture, Wastewater treatment, Hazardous waste management	
Week 11	Microorganisms and single cell protein production	
Weeks 12, 13	Microbial enzymes and microbial production of organic acids	
Weeks 14, 15	Environmental applications-biodeterioration , bioremediation	

Mapping of Course Outcomes to Program Student Outcomes	Course Outcome Weight (Out of 100%)	Assessment method
Know that food provide an ideal environment for microbial survival and growth: so it could be a source of diseases OR a medium to grow industrial microorganisms [1C]	15%	

Know the intrinsic and extrinsic factors affecting the growth of microorganisms for either fermentation processes OR environment [1C]	15%	
Understand how the microorganisms spoil food , pharmaceutical products OR any other material and HOW to preserve them [1C]	20%	
Understand the main principles of initiating a microbiological industries [1C]	15%	
Understand the role of microorganisms in food and pharmaceutical industries [1C]	20%	
Familiar with the industrial application of microorganism such as enzymes, antibiotics production, bioremediation etc. [1C]	15%	

Relationship to Program Student Outcomes (Out of 100%)					
A	B	C	D	E	F
		100			

Evaluation	
Assessment Tool	Weight
First Exam	20%
Second Exam	20%
Practical	20%
Final Exam	40%

Policy	
class Attendance	Your class attendance is mandatory. Absences in excess of 20% of the total lecture hours will result in your being dropped from the course with a failing grade
makeup Exams	Make-up exam appeals should be filed within one week of the missed exam
cell phones	Cell phones are completely prohibited during examinations according to the university regulations i.e. you are not allowed to bring your phone into the exam hall
cheating	Unethical conduct, including cheating during examinations, will result in punishment by the university administration

Date Printed: 2018-10-08

The 7th edition of Modern Food Microbiology, like previous editions, focuses on the general Food Microbiology. 478 Pages • 2009 • 9.33 MB • 34,032 Downloads. Food Microbiology Third Edition Martin R. Adams and Maurice O. Moss University of Surrey, Guildford Food Microbiology - acharya ng ranga agricultural university. 181 Pages • 2012 • 2.21 MB • 14,956 Downloads. 1. department of food & industrial microbiology. Study material. Course Title: FOOD MICROB Modern Food Microbiology according to Seneca. The practice of smoking meats as a form of preservation is presumed to have emerged sometime during this period, as did the making of cheese and wines. It is doubtful whether people at this time understood the nature of these newly found preservation techniques. Modern Food Microbiology. Authors: Jay, James M., Loessner, Martin J., Golden, David A. Free Preview. • The book builds on the trusted and established sections on food preservation by modified atmosphere, high pressure and pulsed electric field processing, food-borne pathogens, food regulations, fresh-cut produce, new food products, and risk assessment and analysis. In-depth references, appendixes, illustrations, index and thorough updating of taxonomies make this an essential for every food scientist. Show all. Modern Food Microbiology. For most semester courses with a 3-credit lecture and accompanying 2 or 3 credit laboratory, only about 65-70% of the material in this text is likely to be covered. The remainder is meant for reference purposes. • vii. viii. Modern Food Microbiology. Part III • "MICROORGANISMS IN FOODS . . . 61.