

## Course Syllabus

1	<b>Course title</b>	Food Microbiology
2	<b>Course number</b>	0603401
3	<b>Credit hours (theory, practical)</b>	3(2,1)
	<b>Contact hours (theory, practical)</b>	3(2,1)
4	<b>Prerequisites/corequisites</b>	General Microbiology (0603301)
5	<b>Program title</b>	BSc. Food Science and Technology
6	<b>Program code</b>	042
7	<b>Awarding institution</b>	The university of Jordan
8	<b>School</b>	Agriculture
9	<b>Department</b>	Food Science and Nutrient
10	<b>Level of course</b>	BSc., third year
11	<b>Year of study and semester (s)</b>	First semester 2019-2020
12	<b>Final Qualification</b>	BSc
13	<b>Other department (s) involved in teaching the course</b>	Non
14	<b>Language of Instruction</b>	English
15	<b>Date of production/revision</b>	2019

### 16. Course Coordinator:

Office numbers, office hours, phone numbers, and email addresses should be listed.  
 Prof. Ghadeer F. Mehyar, 11:00-12:00 Sunday, Tuesday and Thursday  
 10:00-11:00 & 12:00 :14:00 Monday and Wednesday  
 g.mehyar@ju.edu.jo

### 17. Other instructors:

Office numbers, office hours, phone numbers, and email addresses should be listed.  
 Non

### 18. Course Description:

This course provides information on foodborne microorganisms and their role and significance in quality and safety of foods. Factors affecting life and death of microorganisms in foods. Microbiology of selected food commodities with emphasis on safety and quality. Role of microorganisms in food processing. Practical part provides basic knowledge and skills needed in food microbiology laboratory.

## 19. Course aims and outcomes:

### A- Aims:

- 1- Outline significance of microorganisms in food.
- 2- Understanding microbial taxonomy and classification of foodborne microorganisms.
- 3- Recognizing that microorganisms are constantly affected by the surrounding factors.
- 4- Understanding that microorganism in foods vary from spoilage to pathogens to processing.
- 5- Relating presence of specific microorganism in specific foods.
- 6- Introduction to food biotechnology and microbial food industry.

B- Intended Learning Outcomes (ILOs): Upon successful completion of this course students will be able to

**A. Knowledge and Understanding:** Student is expected to

**A1-** Identify foods as microbial ecosystems.

**A2-** Recognize important microorganisms affecting food quality and safety.

**A3-** In case study for each of foodborne bacteria, yeasts and molds

**A4-** Understand factors inside the foods and surrounding the foods that affecting life and death of microorganisms in foods.

**A5-** Understand each food commodity-related microorganisms.

**A6-** Know the best ways of used microorganism in food industry.

**B. Intellectual Analytical and Cognitive Skills:** Student is expected to

**B1-** Learn how to control food spoilage and diseases microorganisms.

**B2-** How to benefit from processing and technological microorganism in food industry.

**B3-** How to deal with different foods infected by different microorganisms.

**C. Subject-Specific Skills:** Student is expected to

**C1-** Identify methods of microorganism control to preserve food and make food consumption safe

**C2-** Identify microbial flora and microorganisms of public health importance to selected food commodities.

**C3-** In case study of different foods and their related microorganisms.

**C4-** Differentiate between good (processing) and bad (spoilage and pathogenic) food related microorganisms.

**D. Transferable Key Skills:** Students is expected to

**D1-** Acquire skills needed in food microbiology laboratory to enumerate, isolate and identify microorganisms relevant to food quality and safety.

## 20. Topic Outline and Schedule:

Topic	Week	Instructor	Achieved ILOs	Evaluation Methods	Reference
1- Role and significance of microorganisms in foods	2/ 1 <sup>st</sup>	Prof. Ghadeer Mehyar	A-1, B3	Exams	Chapter 1 Adams and Moss
2- Bacteria important to foods	4/ 2-3 <sup>th</sup>	Prof. Ghadeer Mehyar	A-2, B-1, B-3, C-2	Exams	Chapter 3 Ray and Bhunia  Chapter 2 Jay
Use of bacteria in food production and preservation	3/ 4 <sup>th</sup>	Prof. Ghadeer Mehyar	A-2, A-3, B-2, B-4C-1, C-2	Exams	Chapter 18 Ray and Bhunia
3- Yeasts important to foods	4/ 5-6 <sup>th</sup>	Prof. Ghadeer Mehyar	A-2, A-3, B-1, B-3, C-1, C-2	Exams	Chapter 2 Adams and Moss
4- Molds important to foods	4/ 7 <sup>th</sup>	Prof. Ghadeer Mehyar	A-2, A-3 B-1, B-3, C-1, C-2	Exams	Chapter 2 Adams and Moss
5- Factors affecting life and death of food-borne microorganisms - Intrinsic factors - Extrinsic factors - Implicit factors	9/ 9-13 <sup>th</sup>	Prof. Ghadeer Mehyar	9/ 9-13 <sup>th</sup>	Exams	
6- Microbiology of selected commodities	2/ 14 <sup>th</sup>	Prof. Ghadeer Mehyar	2/ 14 <sup>th</sup>	Exams	Chapter 5 Adams and Moss  Part III Jay
7- Food fermentations and introduction to food	2/ 15 <sup>th</sup>	Prof. Ghadeer Mehyar	2/ 15 <sup>th</sup>	Exams	Chapter 10 and 14 Ray and Bhunia

biotechnology					
8- Practical (laboratory) section	One 3 hours laboratory/ week	Prof. Ghadeer Mehyar	One 3 hours laboratory/ week	Exams & reports	Part IV Jay

### 21. Teaching Methods and Assignments:

Development of ILOs is promoted through the following teaching and learning methods:  
Lectures and practical lab

### 22. Evaluation Methods and Course Requirements:

Opportunities to demonstrate achievement of the ILOs are provided through the following assessment methods and requirements:

Students outcome grades  
Students evolutions  
Course evaluation

### 23. Course Policies:

#### A. Attendance policies:

In case if the absence exceeded 15%, the student will automatically will fail the course.

#### B- Absences from exams and handing in assignments on time:

Makeup exam will be assigned. Postponing the assignment delivery time could be provided.

#### C- Health and safety procedures:

Are instructed from the beginning of the course.

#### D- Honesty policy regarding cheating, plagiarism, misbehavior:

Withdrawal of the exam

#### E- Grading policy:

It is given to the students from the beginning of the course.

#### F- Available university services that support achievement in the course:

Labs are well equipped for this purpose.

### 24. Required equipment: ( Facilities, Tools, Labs, Training...)

Food microbiology laboratory.

### 25. References:

Required book (s), assigned reading and audio-visuals:

- 1- Adams, M. R. and Moss, M. O. 2004. Food Microbiology. The Royal Society of Chemistry, Cambridge.
- 2- Jay J.M., Loessner, M. J. and Golden, D. V. 2005. Modern Food Microbiology. 7<sup>th</sup> edition Springer, New York.
- 3- Ray, B and Bhunia, A. 2008. Fundamental Food Microbiology. 4<sup>th</sup> edition. CRC Press. Taylor & Francis Group, NW.

Recommended books, materials, and media:

- 1- Forsythe, S. J. and Hayes, P. R. (1998). Food Hygiene, Microbiology and HACCP. 3<sup>rd</sup> edition. Aspen Publishers, Inc.
- 2- Ray, B. (2001). Fundamental Food Microbiology. CRC Press, Boca Raton.
- 3- Doyle, M. P., Beuchat, L. R. and Montville, T. J. (1997). Food Microbiology: Fundamentals and Frontiers. American Society for Microbiology.
- 4- Center for Food Safety & Applied Nutrition (2001). Bacteriological Analytical Manual Online U.S. Food & Drug Administration, U. S. Department of Health and Human Services. (<http://www.cfsan.fda.gov/~ebam/bam-toc.html>)
- 5- Harrigan, W. F. (1998). Laboratory Methods in Food Microbiology. Academic Press, London.

**26. Additional information:**

Non

Name of Course Coordinator: -----Prof. Ghadeer F. Mehyar--Signature: ----- Date: 28<sup>th</sup> Nov 2019--

Head of curriculum committee/Department: ----- Signature: -----

Head of Department: ----- Signature: -----

Head of curriculum committee/Faculty: ----- Signature: -----

Dean: ----- -Signature: -----