

Jordan University of Science and Technology
Faculty of Agriculture
Department of Nutrition and Food Technology
First Semester 2022/2023
Course Specifications

Title & Instructor	
Course Title	Food Biotechnology
Course Number	NF 459
Prerequisites	
Course Website	
Instructor	Prof. Ziad Jaradat
Office Location	
Office Phone	
Office Hours	To be determined and by appointment
E-mail	
Teaching Assistant	To be announced

Course Description	
A study of applications of biotechnology in food examination, production of food substitutes and modification of food functional properties. Unit operations that are used in biotechnology, bioreactors and in bioconversion of raw materials. Biotechnology of vitamins, growth factors. Hormones and amino acids regarding their production, modification, and Know-how of their use in food enrichment. Regulatory and social aspects of food and nutrition biotechnology	
Learning Outcomes	Weights
Demonstrate knowledge in basic concepts of traditional food fermentation	15%
Demonstrate knowledge in microorganisms, plants and animal biotechnology and their relation to food enhancement and production	15%
Demonstrate knowledge in basic genetic manipulations to produce genetically modified foods	20%
Demonstrate knowledge in modern techniques of food analysis	20%
Demonstrate knowledge in genetically modified foods legislation	15%
Effectively communicate scientific ideas orally or and through writing on issues pertaining to food biotechnology.	15%

Text Book & References	
Title	To be chosen by the instructor at the time of the course offering
Author(s)	
Publisher	
Year	
Edition	
Book Website	
References	

Teaching & Learning Methods

PowerPoint slides presented by the instructor and provided as soft and hard copies for students.
 Small group discussions and in-class activities.
 Encouraging the use of social media and communication between students to enhance the learning experience.
 In-class revision sessions and discussion in preparation for exams.

Assessment

Assessment Type	Expected Due Date	Weight
First Exam	To be determined	30%
Second Exam	To be determined	30%
Final Exam	To be determined	40%

Course Content

Week	Topics	ref
1	Introduction to food biotechnology and Fermentation	1
2	Microorganisms used in food biotechnology	1
3	Large scale growth of microorganisms using batch, Fed Batch and continuous Fermenters	1
4	Upstreaming and down streaming processes in using microorganisms for production of vitamins, or other products	1
5	Animal biotechnology and its use for food production	1
6	Plant biotechnology and its use for food production	1
7	Enzymes used in food production	1
8	Genetically modified foods	1
9-10	Nutraceuticals and their impact on human health	1
11	Detection and identification of genetically modified foods	1
12-13	Using modern biotechnological methods (e.g PCR and ELISA) for the detection of food contaminants as well as food adulteration	1
13-14	Food biotechnology legislation and social and ecological issues pertaining to Food Biotechnology	1

Policies

Exams	The exams will include a variety of questions, true-false, multiple choice, fill in the
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	blanks, and essay questions.
Cheating	Plagiarism or any other form of cheating in examinations, term tests or academic work is subject to serious academic penalty. Cheating in examinations or tests may take the form of copying from another student or bringing unauthorized materials into the exam room (e.g., crib notes or cell phones). Exam cheating can also include exam impersonation. A student found guilty of contributing to cheating in examinations or term assignments is also subject to serious academic penalty.
Attendance	Consistent with Jordan University of Science and Technology guidelines, students absent from regularly scheduled examinations because of authorized University activities will have the opportunity to take them at an alternate time. No make-up exams will be given for unexcused absences.
Participation	Participation and discussion are encouraged for earning additional points (extra credits).
Withdraw	Consistent with Jordan University of Science and Technology guidelines