



Jordan University of Science and Technology
Faculty of Agriculture
Plant Production Department

PP431 Biotechnology In Agriculture

First Semester 2021-2022

Course Catalog

3 Credit Hours. Overview of the theoretical background and principles of plant biotechnology as well as its practical application in research and development of new plant cultivars. Specific topics are: recombinant DNA technology, identification and isolation of genes, gene cloning, gene transfer, and plant tissue culture. Other topics to be presented and discussed are: current technical, environmental, and ethical issues related to genetically modified foods as well as the impact of plant biotechnology on agriculture and the economy.

Text Book

Title	Biotechnology An Introduction
Author(s)	S. R. Barnum
Edition	2nd Edition
Short Name	Textbook1
Other Information	

Course References

Short name	Book name	Author(s)	Edition	Other Information
Textbook2	Recombinant DNA Book	M. Gilman, J. D. Watson, J. Witkowski, and M. Zoller	2nd Edition	
Lecture Notes Slides	PowerPoint Lecture Slides	Saba Qusus	1st Edition	

Instructor

Name	Dr. Saba Qusus
Office Location	-
Office Hours	
Email	dr-q@just.edu.jo

Class Schedule & Room
Section 1: Lecture Time: Mon : 13:00 - 14:30 Room: C5024

Prerequisites		
Line Number	Course Name	Prerequisite Type
963413	BT341 Molecular Genetics	Prerequisite / Pass

Tentative List of Topics Covered		
Weeks	Topic	References
Week 1	Biotechnology: Introduction	Chapter 1 From Textbook1 , Lecture Notes 1 From Lecture Notes Slides
Weeks 2, 3	Molecular Biology Basics	Chapter 2 From Textbook1 , Chapters 1, 2, 3 From Textbook2 , Lecture Notes 2, 3 From Lecture Notes Slides
Weeks 4, 5	Common Tools & Techniques in Genetic Engineering	Chapter 3 From Textbook1 , Chapters 5, 6, 7 From Textbook2 , Lecture Notes 4, 5 From Lecture Notes Slides
Weeks 5, 6, 7	Plant Genetic Engineering	Chapter 6 From Textbook1 , Chapter 24 From Textbook2 , Lecture Notes 6, 7 From Lecture Notes Slides
Week 8	Tissue Culture Overview	Lecture Notes 8 From Lecture Notes Slides
Weeks 9, 10	Examples of Major GM Crops	Chapter 6 From Textbook1 , Chapter 24 From Textbook2 , Lecture Notes 9 From Lecture Notes Slides
Week 11	Examples of Major GM Crops	Chapter 6 From Textbook1 , Chapter 24 From Textbook2 , Lecture Notes 9 From Lecture Notes Slides
Week 12	GM Crops: Risks + Benefits	Lecture Notes 10 From Lecture Notes Slides
Week 13	Biotech Crops Status in The World: Global Statistics	Lecture Notes 11 From Lecture Notes Slides

Mapping of Course Outcomes to Program Student Outcomes	Course Outcome Weight (Out of 100%)	Assessment method
To introduce the concept of biotechnology, its development through history and its various branches	5%	
Introduction and review of eukaryotic/plant genetics (DNA ? mRNA ? protein).	5%	

To acquire basic knowledge about the main tools and laboratory techniques used in recombinant DNA technology	10%	
To describe the major basic biotechnologies related to the production of genetically modified crops: cloning and transformation techniques, selectable markers and reporter genes, short review of plant tissue culture	30%	
Major examples of commercial transgenic plants available in the market; development and description	20%	
Global status and statistics of commercialized GM crops and to highlight the recent advances in the area of crop biotechnology.	15%	
The ecological, sociological and ethical issues associated with GM plants and their products. in addition to the challenges encountered in this area.	15%	

Relationship to Program Student Outcomes (Out of 100%)						
PLO1	PLO2	PLO3	PLO4	PLO5	PLO6	PLO7

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