



Form: Course Syllabus	Form Number	EXC-01-02-02A
	Issue Number and Date	2963/2022/24/3/2 5/12/2022
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	Number of Pages	06

1.	Course Title	Advanced Biological Control
2.	Course Number	(0606951)
3.	Credit Hours (Theory, Practical)	3
	Contact Hours (Theory, Practical)	3
4.	Prerequisites/ Corequisites	
5.	Program Title	PhD in Plant Protection
6.	Program Code	
7.	School/ Center	The University of Jordan
8.	Department	Agriculture
9.	Course Level	Plant Protection
10.	Year of Study and Semester (s)	PhD
11.	Other Department(s) Involved in Teaching the Course	/
12.	Main Learning Language	English
13.	Learning Types	<input type="checkbox"/> Face to face learning <input type="checkbox"/> Blended <input checked="" type="checkbox"/> Fully online
14.	Online Platforms(s)	<input checked="" type="checkbox"/> Moodle <input checked="" type="checkbox"/> Microsoft Teams
15.	Issuing Date	
16.	Revision Date	

17. Course Coordinator:

Name: Prof. Salah Araj	Contact hours:
Office number:	Phone number: +962 6 5355000 Ext. 22520
Email: s.alaraj@ju.edu.jo	



18. Other Instructors:

Name:

Office number:

Phone number:

Email:

Contact hours:

Name:

Office number:

Phone number:

Email:

Contact hours:

19. Course Description:

This course comprises the study of the philosophy and importance of biological control and the obstacles which limit its application. It also covers the biology and impact of predators and parasites, including different methods of importation, conservation, augmentation of release of natural enemies. The role of biological control in IPM will be also emphasized.

20. Program Intended Learning Outcomes: (To be used in designing the matrix linking the intended learning outcomes of the course with the intended learning outcomes of the program)

1. Implement the advanced concepts and processes in various disciplines in Plant Protection.
2. Extract information and findings of science from literature in Plant Protection.
3. Plan, conduct and analyze the results of scientific research.
4. Communicate effectively with his supervisors and colleagues orally and in writing.
5. Employ expertise and skills gained in the development production, research, and extension on different levels in the public and private sectors in Jordan and worldwide.
6. Engage efficiently in a scientific team work.
7. Publish research in the field of Plant Protection in peer-reviewed scientific journals.
8. Commit to ethics and compliance responsibilities for being an agricultural engineer, especially with regard to agricultural sector, environment and society.



21. Course Intended Learning Outcomes: (Upon completion of the course, the student will be able to achieve the following intended learning outcomes)

1. Expose students to detailed information about the components and strategies of Biological Control. .
2. learn about the present use of Biological Control as part of Integrated Pest Management.
3. learn how to use the variable biocontrol strategies and methods for managing different kinds of pests (insects, pathogens, weeds, etc.).
4. Recommend the suitable biocontrol agent to control pests.
5. Work effectively on pests problems in agricultural sectors using environmentally save techniques.

22. The matrix linking the intended learning outcomes of the course with the intended learning outcomes of the program:

Program ILOs	ILO (1)	ILO (2)	ILO (3)	ILO (4)	ILO (5)
Course ILOs					
1				√	
2		√			
3	√				
4			√		
5				√	
6		√			
7					√
8			√		

23. Topic Outline and Schedule:

Week	Lecture	Topic	ILO/s Linked to the Topic	Learning Types (Face to Face/ Blended/ Fully Online)	Platform Used	Synchronous / Asynchronous Lecturing	Evaluation Methods	Learning Resources
1	1.1	Introduction to Biological		Fully Online	MS Teams	Synchronous	Homework, Quiz, Presentations	1,2



		Control						
	1.2	Introduction to Biological Control		Fully Online	MS Teams	Synchronous	Homework, Quiz, Presentations	1,2
	1.3	Introduction to Biological Control		Fully Online	MS Teams	Synchronous	Homework, Quiz, Presentations	1,2
2	2.1	History of Biological Control		Fully Online	MS Teams	Synchronous	Homework, Quiz, Presentations	1,-6
	2.2	History of Biological Control		Fully Online	MS Teams	Synchronous	Homework, Quiz, Presentations	1-6
	2.3	History of Biological Control		Fully Online	MS Teams	Synchronous	Homework, Quiz, Presentations	1-6
3	3.1	Strategies and methods of practicing Biological Control		Fully Online	MS Teams	Synchronous	Homework, Quiz, Presentations	1-8
	3.2	Strategies and methods of practicing Biological Control		Fully Online	MS Teams	Synchronous	Homework, Quiz, Presentations	1-8
	3.3	Strategies and methods of practicing Biological Control		Fully Online	MS Teams	Synchronous	Homework, Quiz, Presentations	1-8
4	4.1	Strategies and methods of practicing Biological Control		Fully Online	MS Teams	Synchronous	Homework, Quiz, Presentations	1-8
	4.2	Strategies and methods of practicing Biological Control		Fully Online	MS Teams	Synchronous	Homework, Quiz, Presentations	1-8
	4.3	Strategies and methods of		Fully Online	MS Teams	Synchronous	Homework, Quiz,	1-8



		practicing Biological Control					Presentations	
5	5.1	Strategies and methods of practicing Biological Control		Fully Online	MS Teams	Synchronous	Homework, Quiz, Presentations	1-8
	5.2	Strategies and methods of practicing Biological Control		Fully Online	MS Teams	Synchronous	Homework, Quiz, Presentations	1-8
	5.3	Strategies and methods of practicing Biological Control		Fully Online	MS Teams	Synchronous	Homework, Quiz, Presentations	1-8
6	6.1	Strategies and methods of practicing Biological Control		Fully Online	MS Teams	Synchronous	Homework, Quiz, Presentations	1-8
	6.2	Strategies and methods of practicing Biological Control		Fully Online	MS Teams	Synchronous	Homework, Quiz, Presentations	1-8
	6.3	Strategies and methods of practicing Biological Control		Fully Online	MS Teams	Synchronous	Homework, Quiz, Presentations	1-8
7	7.1	Strategies and methods of practicing Biological Control		Fully Online	MS Teams	Synchronous	Homework, Quiz, Presentations	1-8
	7.2	Strategies and methods of practicing Biological Control		Fully Online	MS Teams	Synchronous	Homework, Quiz, Presentations	1-8



	7.3	Strategies and methods of practicing Biological Control		Fully Online	MS Teams	Synchronous	Homework, Quiz, Presentations	1-8
8	8.1	Strategies and methods of practicing Biological Control		Fully Online	MS Teams	Synchronous	Homework, Quiz, Presentations	1-8
	8.2	Strategies and methods of practicing Biological Control		Fully Online	MS Teams	Synchronous	Homework, Quiz, Presentations	1-8
	8.3	Strategies and methods of practicing Biological Control		Fully Online	MS Teams	Synchronous	Homework, Quiz, Presentations	1-8
9	9.1	Strategies and methods of practicing Biological Control		Fully Online	MS Teams	Synchronous	Homework, Quiz, Presentations	1-8
	9.2	Strategies and methods of practicing Biological Control		Fully Online	MS Teams	Synchronous	Homework, Quiz, Presentations	1-8
	9.3	Strategies and methods of practicing Biological Control		Fully Online	MS Teams	Synchronous	Homework, Quiz, Presentations	1-8
10	10.1	Strategies and methods of practicing Biological Control		Fully Online	MS Teams	Synchronous	Homework, Quiz, Presentations	1-8
	10.2	Strategies and methods of practicing		Fully Online	MS Teams	Synchronous	Homework, Quiz, Presentations	1-8



		Biological Control						
	10.3	Strategies and methods of practicing Biological Control		Fully Online	MS Teams	Synchronous	Homework, Quiz, Presentations	1-8
11	11.1	Biological Control of arthropods		Fully Online	MS Teams	Synchronous	Homework, Quiz, Presentations	1-6
	11.2	Biological Control of arthropods		Fully Online	MS Teams	Synchronous	Homework, Quiz, Presentations	1-6
	11.3	Biological Control of arthropods.		Fully Online	MS Teams	Synchronous	Homework, Quiz, Presentations	1-6
12	12.1	Biological Control of arthropods.		Fully Online	MS Teams	Synchronous	Homework, Quiz, Presentations	1-6
	12.2	Biological Control of arthropods		Fully Online	MS Teams	Synchronous	Homework, Quiz, Presentations	1-6
	12.3	Biological Control of arthropods		Fully Online	MS Teams	Synchronous	Homework, Quiz, Presentations	1-6
13	13.1	Biological Control of arthropods		Fully Online	MS Teams	Synchronous	Homework, Quiz, Presentations	1-6
	13.2	Biological Control of arthropods		Fully Online	MS Teams	Synchronous	Homework, Quiz, Presentations	1-6
	13.3	Biological Control of arthropods		Fully Online	MS Teams	Synchronous	Homework, Quiz, Presentations	1-6

24. Evaluation Methods:

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

Evaluation Activity	Mark	Topic(s)	ILO/s Linked to the	Period (Week)	Platform
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			Evaluation activity		
Midterm exam	30	According to lecturing schedule	1 to 5	To be agreed upon	Face to Face
Term paper and activities	30	According to lecturing schedule	1 to 5	To be agreed upon	MS Teams
Final Exam	40	According to lecturing schedule	1 to 5	To be agreed upon	Face to Face

25. Course Requirements:

Students should have a computer, internet connection, webcam, account on a specific software/platform MS Teams)

26. Course Policies:

A- Attendance policies:

B- Absences from exams and submitting assignments on time:

C- Health and safety procedures:

D- Honesty policy regarding cheating, plagiarism, misbehavior:

E- Grading policy:

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

27. References:

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

1. Hajek, A. E. 2004. Natural Enemies: An Introduction to Biological Control. Cambridge University Press, Cambridge

B- Recommended books, materials, and media:

2. Bellows, T. S. and T. W. Fisher. 1999. Handbook of Biological Control: Principles and Applications. Academic Press, San Diego, CA.
3. Clausen, C.P. 1940. Entomophagous Insects. McGraw-Hill Book Company, Inc. New York.



4. DeBach, P. and D. Rosen. 1991. Biological Control by Natural Enemies. Cambridge University Press, Cambridge.
5. Huffaker, C. B. and P. S. Messenger. 1976. Theory and Practice of Biological Control. Academic Press, New York.
6. Van Driesche, R., Hoddle, M. and T. D. Center. 2008. Control of Pests and Weeds by Natural Enemies. An Introduction to Biological Control. Blackwell Publishing, Oxford.
7. Van Lenteren J.C. 2012. IOBC Internet Book of Biological Control. IOBC Version 6
8. Web sites and Journals.

28. Additional information:

Name of the Instructor or the Course Coordinator:	Signature:	Date:
Name of the Head of Quality Assurance Committee/ Department	Signature:	Date:
Name of the Head of Department	Signature:	Date:
Name of the Head of Quality Assurance Committee/ School or Center	Signature:	Date:
Name of the Dean or the Director	Signature:	Date: