

## Course Syllabus

1	Course title	Advanced Plant Fungal Diseases	
2	Course number	(0656761)	
3	Credit hours	1 lectures and 2 labs	
	Contact hours (theory, practical)	1 hour and 3 hrs. lab	
4	Program title	MSc. In Plant protection	
5	Program code	-	
6	School	School of Agriculture	
7	Department	Department of Plant Protection	
9	Course level	MSc	
10	Year of study and semester (s)	2023/2024 , second semester	
11	Other department (s) involved in teaching the course	-	
13	Main teaching language	English	
14	Delivery method	X Face-to-face learning <input type="checkbox"/> Blended <input type="checkbox"/> Fully online	
15	Online platforms(s)	<input type="checkbox"/> Moodle <input type="checkbox"/> Microsoft Teams <input type="checkbox"/> Skype <input type="checkbox"/> Zoom	
16	Issuing/Revision Date	Second semester 26/2/2024	

### 17 Course Coordinator:

Name: Dr. Monther Tahat

Contact hours: Sunday: 11-12 Tuesday and 11-12

Office number: 189

Phone number: 22516 Email: m.tahat@ju.edu.jo

### 18 Other instructors:

### 19 Course Description:

As stated in the approved study plan.

This course deals with the study of groups of fungal diseases (Damping-off, root-rots, wilt diseases, powdery mildew, downy mildew, leaf spots, blight diseases, anthracnose, cankers, rusts and smut diseases) including their causal agents, symptoms, environmental factors affecting their development and dissemination, and their control. Student will be exposed to recent relevant research topics.

## 20 Course aims and outcomes:

### A- Aims:

- A1-Understanding the components of the disease pyramid
- A2-Understand the importance of breeding for plant disease resistance
- A3-Understand the quarantine principles.
- A4-Understand the art of disease management
- A5-Use knowledge of pathogen biology and epidemiology to develop reasonable hypotheses about effective long and short-term control strategies for fungal pathogens

### - B- Students Learning Outcomes (SLOs):

Upon successful completion of this course, students will be able to:

PLOs	1	2	3	4	5	6	7	8
SLOs of the course								
A1.Understanding the components of disease pyramid	√							
A2. Understand the importance of breeding for plant disease resistance	√							
A3.Understand the quarantine principles	√	√	√					
A4.Understand the art of disease management								
A5.Use knowledge of pathogen biology and epidemiology to develop reasonable hypotheses about effective long and short term control strategies for fungal pathogens								
B1. Realise the different components of disease development		√	√		√			
B2. .Know the pathological responses		√	√	√	√			√
B3. Know the advanced topics related to epidemiology and disease forecasting								
B4. Know the importance of breeding for plant disease resistance								
C1. Be familiar with symptomatology, epidemiology, and modes of infection		√	√		√			√
C2. Be familiar with the identification of fungal diseases	√							
D1. Know the physiological interaction between fungus and diseased plant			√	√	√			√
D2. Know the Control measures of plant diseases		√			√			

### PLOS

After the successful completion of this program student should be able to:

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. Topic Outline and Schedule:

Week	Lecture	Topic	Intended Learning Outcome	Learning Methods	Platform	Synchronous / Asynchronous Lecturing	Evaluation Methods	Resources
1	1.1	<b>Introduction: Related disciplines, course concept</b>		Face to Face		Synchronous	Discussion	1
	1.2	Classification of Plant Pathogenic Fungi		Face to Face		Synchronous	Assignments	2
2	2.1	Life cycles of pathogenic fungi		Face to Face		Synchronous	Discussion	2
	2.2	Classification of Plant Pathogenic Fungi		Face to Face		Synchronous	Assignments	2
3	3.1	Fungal diseases of quarantine significance		Face to Face		Synchronous	Discussion	5
	3.2	Fungal diseases of quarantine significance		Face to Face		Synchronous	Assignments	1,6
4	4.1	Fungal pathogenicity of Downy mildew and late blight diseases		Face to Face		Synchronous	Discussion	1,6
	4.2	Fungal pathogenicity of Downy mildew and late blight diseases		Face to Face		Synchronous	Assignments	1,3
5	5.1	Fungal pathogenicity of Vascular Wilt diseases		Face to Face		Synchronous	Discussion	1,3,4,6
	5.2	Fungal pathogenicity of Vascular Wilt diseases		Face to Face		Synchronous	Assignments	1,2,3
6	6.1	Fungal pathogenicity of Vascular Wilt diseases		Face to Face		Synchronous	Discussion	1,3
	6.2	How fungi becomes resistant to certain fungicides.		Face to Face		Synchronous	Assignments	1,3
7	7.1	Root and stem rot diseases and spot diseases		Face to Face		Synchronous	Discussion	1,3
	7.2	<b>Midterm exam</b>		Face to Face		Synchronous		1,3,95

8	8.1	Root and stem rot diseases and spot diseases		Face to Face		Synchronous	Assignments	1,3,5
	8.2	Systematics of Plant Pathogenic Fungi of Powdery mildew diseases		Face to Face		Synchronous	Discussion	1,3,9
9	9.1	Systematics of Plant Pathogenic Fungi of Powdery mildew diseases		Face to Face		Synchronous	Assignments	1,9
	9.2	Smut and Rust diseases					Discussion	1,3
10	10.1	Smut and Rust diseases		Face to Face		Synchronous	Assignments	1,3,7,9
	10.2	Principles of plant disease management of Anthracnose and cankers		Face to Face		Synchronous	Discussion	1,2
11	11.1	Principles of plant disease management of Anthracnose and cankers		Face to Face		Synchronous	Assignments	1,2,6
	11.2	Fungal Mycotoxins, How Pathogens become resistant to fungicides		Face to Face		Synchronous	Discussion	1,2,8,1 2,15
12	12.1	Fungal Mycotoxins, How Pathogens become resistant to fungicides		Face to Face		Synchronous	Assignments	1,3,12
	12.2	Fungal Mycotoxins, How Pathogens become resistant to fungicides		Face to Face		Synchronous		1,7,8,6
13	13.1	Fungal Mycotoxins, How Pathogens become resistant to fungicides		Face to Face		Synchronous	Assignments	1,2,5
	13.2	Mycorrhizae Epiphytes, Endophytes, Biotrophs, Hemibiotrophs, and Necrotrophs		Face to Face		Synchronous	Discussion	1,13
	14.1	Mycorrhizae Epiphytes, Endophytes Biotrophs,, Hemibiotrophs, and Necrotrophs		Face to Face		Synchronous	Assignment	1,2,5
14	14.2	Selected articles from annual review of phytopathology. Disease forecasting		Face to Face		Synchronous	Discussion	1,5,12
15	15.1	Selected articles from annual review of phytopathology. Instrumentation for epidemiology		Face to Face			Assignment	1,7,8,6

## 22 Evaluation Methods:

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

Evaluation Activity	Mark	Topic(s)	SLOs	Period (Week)	Platform
Exam	20%	W1-W7	B1, B2, C1, C2, D2, D3	7 <sup>th</sup> week	
Presentation	20%	W1-W12	B1, B2, C1, C2, D2, D3	At the end of each topic	
Second exam	20%				
Final Exam	40%	W1-W15 all topics	A1,-A3, B1-B2, C1- C2, D1-D2	JU Calendar	

## 23 Course Requirements

students should have a computer, internet connection,

## 24-Course Policies:

A- Attendance policies:

**<15% , <20% with a permission ; medical report**

B- Absences from exams and submitting assignments on time:

- **Assignments will not be accepted after the deadline**
- **Absence of exams with a medical report must be submitted following regulations and a makeup exam will be scheduled within one week**

C- Health and safety procedures:

- **Mask must be worn all the time in class and lab**
- **Social distancing**

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

### E- Grading policy:

From (%)	To (%)	Scale	Mark	Result
0	54	0	C	Fail
55	59	2.5	C+	Good
60	64	2.75	B-	Very Good
65	74	3	B	Very Good
75	79	3.5	B+	Very Good
80	85	3.75	A <sup>-</sup>	Excellent
86	100	4	A	Excellent

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

### 25 References:

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

Text Book:

References:

Press.

- 1-B-: Agrios, G.N. (2005) Plant Pathology. 5th Edition, Academic Press, London, 922 pages
- 2-Webster, J. and Weber R. Introduction to Fungi. (2007). Third Edition. Cambridge University Press. Published in the United States of America by Cambridge University Press, New York.
- 3-: Byrde, P. and Cutting C. (1993). Fungal pathogenicity and the plant's response. Academic Press.
- 4-Holiday, P. (1980) Fungus diseases of tropical crops. Cambridge University Press.
- 5-Kothecker, A. (1970). Handbook of pests, diseases and weeds of quarantine significance. Translated from Russian.
- 6-Kiraly, Z. (1977). Current topics in plant pathology, Budapest, Proceedings of a symposium.
- 7-Avery, R (1983). Potato diseases. Academic Press, London.

8-Annual Review of Plant Pathology.

9-William, F. (1985). Principles of plant disease management. Academic Press. London.

10-Journal of new phytologist.

11- Jaroszuk-Scisel, J., E. Kurek, A. Slomka, M. Janczarek, and B. Rodzik. 2011. Activities of cell wall degrading enzymes in autolyzing cultures of three *Fusarium culmorum* isolates: growth promoting, deleterious and pathogenic to rye (*Secale cereale*). *Mycologia*. 103:929–945.

12-Johnson, N.C., J.-H. Graham, and F.A. Smith. 2008. Functioning of mycorrhizal associations along the mutualism–parasitism continuum. *New Phytologist*. 135:575–585.

13-Kroon, L.P.N.M., H. Brouwer, A.W.A.M. de Cock, and F. Govers. 2012. The genus *Phytophthora* anno 2012. *Phytopathology*. 102:348–364.

14-Kv, S., K. St, and H. Jc. 1996. Effects of deep plowing on the distribution and density of *Sclerotinia minor* sclerotia and lettuce drop incidence. *Plant disease*. 80:28.

15-Redman, R.S., D.D. Dunigan, and R.J. Rodriguez. 2001. Fungal symbiosis from mutualism to parasitism: who controls the outcome, host or invader? *New Phytologist*. 151:705–716.

16-Rossman, A.Y., and M.E. Palm-Hernandez. 2008. Systematics of Plant Pathogenic Fungi: Why It Matters. *Plant Disease*. 92:1376–1386.

17- Gair,R. & Jenkins J. Cereal pests and diseases. Academic Press. London  
1978.

18.Agrios, G.N. (2005) Plant Pathology. 5th Edition, Academic Press, London, 922 pages.

B- Recommended books, materials, and media: Videos In class and will be deposited on learning

- YouTube videos
- APS website

## 26 Additional information:

Name of Course Coordinator: -----	Signature: -----	Date: -----
Head of Curriculum Committee/Department: -----	Signature: -----	
Head of Department: -----	Signature: -----	
Head of Curriculum Committee/Faculty: -----	Signature: -----	
Dean: -----	Signature: -----	