



SYLLABUS

Course Code	Course Num.	Course Name	Credit Hours	Lec.	Lab.	Tut.	Private study	Pre-requisites	Course Level	Teaching Language
BIO	424	Plant Pathology	3	2	2	0	3-5	BIO 322	5	English

A. Course Description

Plant pathology focuses on the nature and causes of diseases in plants; the relationship between the environment and host-parasite interactions to the development of disease symptoms caused by plant pathogens, bacteria, viruses, mycoplasma and nematodes; abiotic causes of the disease; disease control methods; diseases affecting ornamental crops and plants.

B. Course Outcomes

At the end of this course the student will be able to:

1. Understand of principles and concepts of plant pathology.
2. Become familiar with what organisms cause disease in plants.
3. Know how they cause diseases.
4. Describe how disease cycles are used to understand the relationships between pathogens and plants.
5. Explain how to guide management of diseases.
6. Observe a broad range of plant diseases and will have hands-on experience in working with diseases and pathogens.
7. Introduce to different sub disciplines in plant pathology such as epidemiology and genetics and physiology of plant-pathogen interactions.
8. Demonstrate knowledge of the development and diagnosis of various diseases studied in this module.
9. The principles of Quality Assurance and good laboratory practice

C. References:

Required Textbook

- *Agrios G.N. (2005). Plant Pathology (5th ed.). Elsevier Academic Press. ISBN: 0-12-044565- 4.*
- *Alexopoulos C.J., Mims C.W., Blackwell M. (1996). Introductory Mycology (4th ed.). John Wiley & Sons, Inc. ISBN0-471-52229-5.*
- *Schumann G.L., D'Arcy C.J. (2006). Essential Plant Pathology. APS Press. ISBN: 0-89054- 342-9.*

Other references:

- *Trigiano R.N., Windham M.T., Windham A.S. (2004). Plant Pathology, Concepts and Laboratory Exercises. CRC Press. ISBN: 0-8493-1037-7.*
- *Webster J., Weber R.W.S. (2007). Introduction to Fungi (3rd ed.). Cambridge University Press. ISBN: 0-521-01483-2*

Course Website: Google Classroom Webpage: <http://www.imamm.org/>



D. Topics Outline

D1. Lectures topics

1. What is plant pathology, disease, symptoms? Diseases in history.
2. The disease triangle and disease cycles. How do diseases affect plants?
3. Diseases caused by fungi & fungal- like organisms.
4. Diseases caused by Myxomycetes.
5. Diseases caused by Plasmodiophoromycetes, Oomycetes, Zygomycetes.
6. Diseases caused by fungi.
7. Diseases caused by Ascomycetes.
8. Diseases caused by Deuteromycetes
9. Diseases caused by Basidiomycetes: Rusts
10. Diseases caused by Basidiomycetes: Smuts
11. Diseases caused by fungi.
12. Diseases caused by Basidiomycetes: Rhizoctonia, Sclerotium.
13. A study of some plant diseases caused by infection with bacterial organisms.
14. A study of some plant diseases resulting from infection with viral objects.
15. A study of some plant diseases resulting from infection with worms and protozoa.
16. Mechanisms of pathogenicity.
17. Defense mechanisms of plants.
18. Genetics of pathogen-plant interactions.
19. Epidemiology.
20. Physiological diseases and their causes.
21. General revision.

D2. Laboratories topics

1. Introduction to Laboratory Reagents and Equipment Safety and Q.C.
2. Recognition of disease symptoms and keys for pathogen
3. identification.
4. Isolation of pathogens. +
5. Koch's postulates I: Inoculation of tomato with Alternaria; Diseases caused by Zygomycetes.
6. Characteristic of plant pathogenic fungi (part 1): Diseases caused by Oomycetes.
7. Characteristic of plant pathogenic fungi (part 2): Diseases caused by Ascomycetes.
8. Characteristic of plant pathogenic fungi (part 3): Diseases caused by Basidiomycetes: Smuts and Rusts
9. Methodology in plant virology and molecular detection:
10. Inoculation of tobacco plants with TMV.
11. Field trip to Plant Diagnostic Lab: diseases caused by nematodes and protozoa.
12. Diseases caused by plant pathogenic bacteria.
13. Post-harvest diseases.
14. The preparation of permanent slides of some plant pathogens.
15. As well as photographs of some existing diseases of the local Plants.
16. General revision.



E. Office Hours

Office hours give students the opportunity to ask in-depth questions and to explore points of confusion or interest that cannot be fully addressed in class.

F. Exams & Grading System

The semi-official dates of the exams for this course are:

- **Midterm 1:** 6th or 7th week.
- **Midterm 2:** 11th or 12th week.
- **Quizzes & Homeworks:** During the semester.
- **Final lab. Exam :** 14th or 15th week.
- **Final Exam :** 16th week.

Your course grade will be based on your semester work as follows:

Midterm 1: 15 %	Midterm 2: 15 %	Final lab. Exam: 20%	Final Exam: 40 %
Quizzes, Homework, Attendance & Participation: 10 %			

The grading distribution:

A+	A	B+	B	C+	C	D+	D	F
[95, 100]	[90, 95]	[85, 90]	[80, 85]	[75, 80]	[70, 75]	[65, 70]	[60, 65]	[0, 60]

G. Student Attendance/Absence

Only three situations will be considered as possible excused absences:

- Occurrence of a birth or death in the immediate family will be excused. (“Immediate family” is defined by the University as spouse, grandparents, parents, brother, or sister).
- Severe illness in which a student is under the care of a doctor and physically unable to attend class will be excused. Students are not excused for a doctor's appointment. Do not make appointments that conflict with rehearsals. Notes from the University Health Center will be accepted.

[Executive Rules for Study Regulations and Exams](#)

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