

Ministry of Higher Education and Scientific research



**Department of Plant Protection**

**College of Agricultural Engineering Sciences**

**Salahaddin University-Erbil**

**Subject: Forest and Shade Tree Diseases**

**Course Book –Year 3**

**Lecturer's name: Assist.Prof.Dr.Ramadan Yousif Mohamed**

**Practical Lecturer's name: Mohamed Zrar Bakir**

**Academic Year: 2022/2023**

## Course Book

<b>1. Course name</b>	Forest diseases
<b>2. Lecturer in charge</b>	Assist.Prof.Dr. Ramadan Yousif Mohamed Practical Lecturer's name: Mohamed Zrar Bakir
<b>3. Department/ College</b>	Plant Protection Dept./Agricultural Engineering Sciences College.
<b>4. Contact</b>	e-mail: ramadan.mohamed@su.edu.krd Tel: +964 (0) 750 449 2938 e-mail: muhammed.bakir@ su.edu.krd Tel: 07507889848
<b>5. Time (in hours) per week</b>	Theory: 2 Practical: 3
<b>6. Office hours</b>	8:30 – 2:00 from Sunday to Thersday
<b>7. Course code</b>	
<b>8. Teacher's academic profile</b>	Doctor of philosophy (PhD) in Biology, plant pathology, graduated in the university of Mosul, Iraq 2012. Thesis title: Genetic Transformation in Chickpea by <i>Agrobacterium rhizogenes</i> R1601 and Protoplast Fusion for Resistance to Fusarium and Ascochyta. Supervised by: Assist. Prof. Dr. Nadeem Ahmed Ramadan. My master degree (MSc) in biology, plant pathology, graduated in the university of Mosul, Iraq 2006. Thesis title: Study of powdery mildew diseases in fields of provinces of northern. Supervised by: Assist. Prof. Dr. Nadeem Ahmed Ramadan.my Bachelor degree (BSc) in Biology /College of Science /University of Mosul/Iraq 1989-1990.
<b>9. Keywords</b>	<b>Forest diseases/seedling ,Hardwood and conifers diseases</b>
<b>10. Course overview:</b>	<p>Forests are an important part of agriculture and they also considered a great part of nations economic. Forest trees, as in other plants, are vulnerable to many pests and diseases. Plant diseases cause considerable losses to those trees worldwide. Losses due the diseases, beside other factors, are considered a major constraint in the development of agriculture in our country.</p> <p>The study of forest diseases is a branch of general plant pathology, specialized in combating the diseases of tree plants. Plant pathologists should have thorough knowledge of methods of controlling those diseases as well as understand the methods and economics of producing these plants to enable him to apply procedures for the prevention and control of the diseases. Effects of diseases on forest ecosystems. Management of fungal pathogens of natural and intensive forests. Interactions among fungi and bacteria in</p>

forests, and roles for each in mutualism, and decomposition. Identification of the common fungal pathogens.

**11. Course objective:**

To provide students with general knowledge of plant pathology as it pertains to forest and urban trees. The major types of tree diseases and deterioration of wood and wood products are studied, with emphasis on principles of plant pathology, economic impacts, disease diagnosis, disease-causing agents, mechanisms of pathogenesis, and disease management.

This course also aims to provide an understanding and appreciation of Forests diseases, and the practices for their management and control.

In addition to the aims above, the course intends to achieve some wider objectives which have been introduced through Discussions of certain peculiarities in protection.

**At the end of the course, you should be able to:**

- i. Discuss the nature of forests diseases
- ii. Describe the major forests diseases
- iii. Appreciate the economic importance of forests diseases
- iv. Discuss the management and control strategies of forests diseases.

**Also our objectives are:-**

- To gain an appreciation of general forest Pathology.
- To gain more knowledge on living and non-living entities which incite forest diseases.
- To learn the mechanisms and environmental conditions which stimulate plant disease.
- Know how to diagnose forest disease.
- Understand strategies for disease control.

**12. Student's obligation**

Students are required to conduct one writing test theoretical and two tests in practical lectures, each exam will be on 100 degree then it will transferred to 15 degrees, 10 on writing test , 5 for conservation and participating in lectures, while 35 degrees for practical lectures. The final exam will be on 50 degrees just in theoretical.

### 13. Forms of teaching

1. Power point presentations by using data show to show outlines of lectures.
2. White board.

### 14. Assessment scheme

Time	Theoretical	Practical
During semester	<b>10</b>	<b>30</b>
Participation conservation and activity	<b>5</b>	<b>5</b>
Final exam.	<b>50</b>	<b>0</b>

### 15. Student learning outcome:

1. The diagnosis of healthy forests and forest health problems.
2. The diversity of forest health problems with an emphasis on fungi and other pathogen.
3. The etiology, or proof of causality, of diseases.
4. Mechanisms and genetics of resistance to diseases.
5. Interactions among the various organisms sharing woody plant hosts.
6. Strategies for management of pathogenic fungi.
7. Familiarize students with major diseases on forest tree diseases
8. Diagnosis of the diseases with techniques involved.
9. Familiarize students life cycles of the diseases on order to manage the Diseases.

### 16. Course Reading List and References:

The online textbook is '[forestpathology.org](http://forestpathology.org)'.

Supplemental readings will be listed from the following sources.

- Tainter, F.H. & Baker, F.A. 1996. *Principles of Forest Pathology*. J. Wiley & Son, Inc. New York. 805 pp.
- Manion, P.D. 1991. *Tree Disease Concepts*. 2nd Ed. Prentice-Hall, Englewood Cliffs, New Jersey. 402 pp.
- French, D.W. 2002. *Forest and Shade Tree Pathology*. Univ. Minn, Dept. Plant Pathology, St. Paul, MN 55108. 278 pp. [Download as a pdf file \(11Mb\)](#).
- Sinclair, W.A. & Lyon, H.H. 2007. *Diseases of Trees and Shrubs*. 2nd edition. Comstock Publishing, a Division of Cornell University Press, Ithaca, NY. 660 pp.
- GEORGE N. AGRIOS. (2005). *Plant Pathology*, Fifth Edition.
- Terry A. Tattar. (1978). *Diseases of shade trees.*, Academic Press.
- John Shaw Boyce. (1961). *Forest pathology*. McGraw-Hill.
- Zaki Anwar Siddiqui et al. (2008). *Micorrhizae: sustainable agriculture and*

forestry. springer.		
<ul style="list-style-type: none"> <li>• Anna Maria Pirttila and A. Caroline Frank.( 2011). Endophytes of forest trees, biology and applications. Springer.</li> </ul>		
<b>17. The Topics:</b>		<b>Lecturer's name</b>
<b>Week No.</b>	<b>Subject</b>	<b>Dr.Ramadan Y.M.(2hrs)</b>
1 <sup>st</sup>	An introduction- Plant diseases and forests	
2 <sup>nd</sup>	Disease and causes of disease, Management of plant diseases	
3 <sup>rd</sup>	Seed and seedling diseases: Abiotic and non-infectious diseases	
4 <sup>th</sup>	Seedling diseases, Biotic and infectious diseases	
5 <sup>th</sup>	Root diseases	
6 <sup>th</sup>	<b>First monthly examination</b>	
7 <sup>th</sup>	Stem diseases of forest trees	
8 <sup>th</sup>	Stem diseases: Canker diseases	
9 <sup>th</sup>	Stem diseases: Galls and witch's-brooms	
10 <sup>th</sup>	Foliage diseases of hardwoods	
11 <sup>th</sup>	Foliage diseases of hardwoods: Fungi disease	
12 <sup>th</sup>	<b>2<sup>nd</sup> exam</b>	
13 <sup>th</sup>	Foliage diseases of hardwoods: Bacterial disease	
14 <sup>th</sup>	Foliage diseases of Conifers: Needle cast	
15 <sup>th</sup>	Foliage diseases of Conifers: Leaf blights	
<b>18. Practical Topics (If there is any)</b>		<b>Lecturer's name:</b>
<ul style="list-style-type: none"> <li>• Introduction of Forest pathology</li> <li>• Nursery diseases;</li> <li>• Root rot Diseases</li> <li>• Foliage Diseases of hardwood</li> <li>• Exam 1</li> <li>• Scientific trip to Ankawa Nursery</li> <li>• Foliage Diseases of conifers</li> <li>• Foliage Diseases of conifers 2</li> <li>• Wilts diseases</li> <li>• Canker diseases</li> <li>• Scientific trip to Shera Swar</li> <li>• Abiotic diseases</li> <li>• Exam 2</li> </ul>		<b>Miss. Mohamed Zrar (3 hrs)</b>

**19. Examinations:**

- Definitions, such as: Disease , Parasite, ...
- Explanations, such as:
  - Diseases appeared epidemically recently
  - Forest diseases are common in humid areas
- Disease control methods, such as:
  - Eucalyptus blight
  - Choruses
- Mention of the causal agents of a forest disease, such as:
  - Pine needle cast
  - Powdery mildew of Oak
- Life cycle of:
  - *Erwinia amylovora*
  - *Phytophthora citrophthora*

**20. Extra notes:**

- When an exam deferred by a student, whatever be the reason, he/she has to inform the lecturer in order to reschedule for the exam within one week from deferral otherwise he/she has no right to claim and zero will be given.

**21. Peer review**

پیداچونہوہی ھاوہل

This course book has to be reviewed and signed by a peer. The peer approves the contents of your course book by writing few sentences in this section.