

Ministry of Higher Education and Scientific research



**Department of Plant Protection**

**College of Agricultural Engineering Sciences**

**Salahaddin University-Erbil**

**Subject: Mycology**

**Course Book – (Year 2)**

**Lecturer's name: Qasim Marzani, PhD**

**Academic Year: 2023/2024**

# Course Book

<b>1. Course name</b>	<b>Mycology</b>
<b>2. Lecturer in charge</b>	<b>Dr. Qasim Marzani + Dr. Ashna Othman -Theory MSc Zuha Talib- Practical</b>
<b>3. Department/ College</b>	<b>Plant Protection/ College of Agriculture</b>
<b>4. Contact</b>	Dr. Qasim Marzani, e-mail: <a href="mailto:qasim.marzani@su.edu.krd">qasim.marzani@su.edu.krd</a> Tel: 07504668898 Dr. Ashna Othman, E-mail: <a href="mailto:uashna@yahoo.com">uashna@yahoo.com</a> Tel: 07504817521 MSc. Zuha Talib, email: <a href="mailto:zuha.mohammed@su.edu.krd">zuha.mohammed@su.edu.krd</a>
<b>5. Time (in hours) per week</b>	<b>Theory: 2 Practical: 3</b>
<b>6. Office hours</b>	<b>Sunday to Thursday</b>
<b>7. Course code</b>	
<b>8. Teacher's academic profile</b>	Doctor of Philosophy in Plant Pathology, graduated in the University of Nottingham, England, United Kingdom, 2007 - 2011. Thesis title: Fungicide Resistance And Efficacy for Control Of <i>Pyrenophora teres</i> And <i>Mycosphaerella graminicola</i> on Barley and Wheat. Supervised by: Dr. Stephen Rossall. My Master is on plant pathology, Salahaddin University, Erbil, Southern Region of Kurdistan, 2000—2003. Thesis title: Epiphytotic and control of chickpea blight caused by <i>Ascochyta rabiei</i> in Erbil province. Supervised by assistant professor Yaqoub Issac Elia. My Bachelor degree is on Agricultural Sciences – Plant Protection, University of Baghdad, Baghdad, Iraq, 1983 – 1990 (Note: two years out of classes).
<b>9. Keywords</b>	<b>Mycology, Oomycota, Fungi</b>
<b>10. Course overview:</b>	Plant diseases are caused by two principal factors which are living organisms and non-living things. Living organisms that cause diseases to plants and also to humans and animals are include fungi, bacteria, viruses and other microorganisms. Plant diseases due to fungi are considered a major constraint in plant protection, a proportion of more than 70% of plant disease are caused by fungi. This course is designed for year two students which is a basic of plant pathology and microbiology. This let students to understand the subject easily later on throughout incoming specialized courses. The main aims of the course are to let students have an idea about principles of mycology, isolation, recognition and identification of common fungi. The will cover major fungi that cause plant diseases as well as beneficial fungi will be covered. The study of fungal structures, cultural characteristics, and biology will also be given a great attention. Students should have a thorough knowledge on the fungal habitats, the body of fungi, nutrition, reproduction, spread and survival. The principles of microbiology, in general, are also required to better understand plant disease initiations and thus; enable them

to decide what will be the right action to adopt later on in the field of plant protection. Understanding principles of plant pathology will give a better chance to new graduates in their future carrier. New graduates may therefore, work in plant clinics to manage plant diseases and in setting programmes for each crop production.

**11. Course objective:**

One of the objectives of this course is giving an idea on the importance of mycology and Oomycota in the field of plant protection and disease management. The basics of fungal habitats, development, dissemination and survival should be given to students. The knowledge about fungal structure, microscopical characters, and isolation methods, is of great importance. The procedures to isolation, identification and study the most prevalent fungi and fungi-like organisms are another objective of the course. Study of the beneficial fungi, fleshy fungi and symbiotic fungi is also one of the core objectives that required to be acquainted by the students.

**12. Student's obligation**

Students have to attend every single lecture on time and have to be prepared for daily quizzes and follow the lecture. They are responsible for all explanations and details that given by the lecturer and write down them in their notebooks. Referring to text books is also required in order to have more details about any subject.

**13. Forms of teaching**

Use of data show by preparing PowerPoint presentations in which the outlines of each lecture will be shown but the details of the lecture will be narrated by the lecturer himself. The white board is also required for many explanations and illustrations. In some cases, samples will be shown to students to have a close and real idea on the subject.

**14. Assessment scheme**

Students are evaluated during the semester for the theory part by:

- Daily short exams (quizzes) with giving 5 marking out of 15. Quizzes will be given during the first 10 minutes of lecture so don't be late. There will be no opportunities to make up quizzes or any additional time given for showing up late so please do not ask.
- Two term exams, 10 mark each out of 15, will be required. The practical part is given 35 marks in total.

**15. Student learning outcome:**

The study of mycology and oomycota is very important for student's forthcoming years and also for his/her career. At the end of the course, students expected to learn enough knowledge on how to deal with fungi and fungi-like organisms, at what time they appear, how they live, and the most important thing is how to manage the diseases caused by the pathogenic fungi. Students will learn how the field processes are connected with the diseases that may appear later on. As agribusinesses, the plant producers are in desperate need to those experts to reduce the losses especially those caused by fungi and oomycota in our region which has a great diversity in environmental conditions throughout the year.

**16. Course Reading List and References:**

▪ Key references:

1. Introduction to fungi. By John Webster and Roland Weber. Third Edition, Cambridge University Press, 2007.
2. Introductory Mycology. By C. I. Alexopoulos, C. W. Mims, and M. Blackwell. Fourth edition, John Wiley Sons Inc. 1996.

▪ Useful references:

1. Plant pathology, 5<sup>th</sup> edition. By Agrios G N (2005). Academic Press.

17. The Topics:	Lecturer's name
<ol style="list-style-type: none"> <li>1. Introduction on: importance of fungi, structure and reproduction.</li> <li>2. Taxonomy of fungi</li> <li>3. Kingdom Protista: Myxomycota with classes within</li> <li>4. Kingdom: Staminipila (Oomycota)</li> <li>5. Kingdom fungi: Chytridiomycota</li> <li>6. Zygomycota</li> <li>7. Ascomycota- Archiascomycetes</li> <li>8. 1st exam + Ascomycota- Hemiascomycetes</li> <li>9. Ascomycota- Plectomycetes</li> <li>10. Ascomycota- Hymenoascomycetes</li> <li>11. Ascomycota- Loculoascomycetes</li> <li>12. Basidiomycota- Homobasidiomycetes</li> <li>13. Basidiomycota- Heterobasidiomycetes</li> <li>14. Basidiomycota- Urediniomycetes-Uredinales (rust fungi)</li> <li>15. Basidiomycota- Ustilaginomycetes-smut fungi and their allies</li> </ol>	<p>Dr. Qasim Marzani Dr. Ashna Othman</p>
<p><b>18. Practical Topics (If there is any)</b></p>	

Ministry of Higher Education and Scientific research

<ol style="list-style-type: none"><li>1- Culture media preparation and fungal isolation</li><li>2- General characteristics of fungi.</li><li>3- Spore , conidia and fungal structures</li><li>4- Taxonomy of fungi- Myxomycota and Oomycota</li><li>5- Phylum: chytridiomycota</li><li>6- Exam</li><li>7- Phylum: Zygomycota</li><li>8- Phylum : Ascomycota</li><li>9- Ascomycota: Class: Plectomycetes</li><li>10- Ascomycota: Class: hymenoacomycetes</li><li>11- Ascomycota: Class: Loculoascomycetes</li><li>12- Phylum; Basidiomycota</li><li>13- Class: uredinomyces</li><li>14- Class: ustliaginomyces</li><li>15- Exam</li></ol>	<p>Lecturer's names: Dr. Qasim Marzani MSc. Ashna Othman</p>
<p><b>19. Examinations:</b></p> <ol style="list-style-type: none"><li>1. <b>Definitions</b>, such as: sclerotia, hypha, ...</li><li>2. <b>Explanations</b>, such as:<ol style="list-style-type: none"><li>a. Some fungi are called mycelia sterilia</li><li>b. Oomycota are not considered true fungi</li></ol></li><li>3. <b>Diagnose</b> the following fungi:<ol style="list-style-type: none"><li>a. Rhizoctonia</li><li>b. Fusarium</li></ol></li><li>4. <b>Mention</b> the characteristics of the following fungi:<ol style="list-style-type: none"><li>a. Alternaria</li><li>b. Agaricus bisporus</li></ol></li></ol>	
<p><b>20. Extra notes:</b></p> <p>When an exam deferred by a student, whatever be the reason, he/she has to do the exam within one week from deferral. <b>It is the student's responsibility</b> to contact the lecturer/instructor with the frame time to rearrange for an alternative exam. Failure to do so in a timely fashion may result in a zero grade for the missed exam.</p>	
<p><b>21. Peer review</b> <span style="float: right;">بئداچوونهوهی هاوئل</span></p> <p>I hereby approve that the course is comprehensive and cover all aspects of the course. The subjects are arranged sequentially that enable the students to learn gradually step by step.</p> <p>Name:</p> <p>Degree:</p> <p>Speciality:</p> <p>Signed:</p> <p>Date:</p>	