UNIVERSITI TEKNOLOGI MARA

AGR554: PLANT PATHOLOGY

Course Name (English)	PLANT PATHOLOGY APPROVED
Course Code	AGR554
MQF Credit	3
Course Description	This course will provide the student with concepts that form the basis for understanding the causes, mechanisms and control of plant diseases. The course emphasizes the biological and ecological aspects of pathogenesis and the role of plant diseases in plant production. Using the specific examples, the students will be introduced to all major types of plant pathogens. Students will become aware that plant pathology is a multidisciplinary branch of biology and that plant diseases are having a significant impact on society.
Transferable Skills	Able to diagnose disease and pathogen from infected crop and able to come up with the solution to cure the crop
Teaching Methodologies	Lectures, Lab Work
CLO	CLO1 Learn basic principles and concepts of plant pathology. CLO2 Apply principles and concepts of plant pathology to specific diseases of importance. CLO3 Consider multiple factors including; host and parasite biology, plant culture, epidemiology, environment, and economics when designing and implementing a plant health management strategy
Pre-Requisite Courses	No course recommendations

Topics
1. Introduction 1.1) N/A
2. Causes of plant Disease 2.1) 2.1 Abiotic causes 2.2) 2.2 Biotic causes 2.3) 2.2.1 Fungi 2.4) 2.2.2 Bacteria 2.5) 2.2.3 Viruses and viroids 2.6) 2.2.4 Nematodes 2.7) 2.2.5 Parasitic plants
3. Diagnosis of Plant Diseases 3.1) 3.1 Gross Observation: Symptoms and Signs 3.2) 3.2 Culture and Microscopic Examination: Koch’s Postulates 3.3) 3.3 Molecular Methods
4. Parasitism and Disease Development 4.1) 4.1 Parasitism and Pathogenesis 4.2) 4.2 Disease Triangle 4.3) 4.3 Disease Cycle
5. How Pathogens Attack Plants 5.1) 5.1 Mechanical Forces 5.2) 5.2 Chemical/ Biochemical Methods
6. Effects on Host Physiological Functions 6.1) 6.1 Photosynthesis 6.2) 6.2 Respiration 6.3) 6.3 Translocation and adsorption 6.4) 6.4 Transpiration

7. Plant Defence Mechanisms 7.1) 7.1 Pre-existing Structural and Chemical Defence 7.2) 7.2 Induced Structural and Biochemical Defence
8. Genetics of Plant Diseases 8.1) 8.1 Types of Resistance 8.2) 8.2 Gene for Gene Concepts
9. Plant Disease Epidemiology 9.1) 9.1 Elements of Epidemic 9.2) 9.2 Development and Forecasting of Epidemic
10. Plant Disease Control 10.1) 10.1 Concept of Disease Control/Management 10.2) 10.2 Avoidance/Exclusion 10.3) 10.3 Eradication 10.4) 10.4 Resistance 10.5) 10.5 Protection 10.6) 10.6 Integrated Disease Management

Assessment Breakdown	%
Continuous Assessment	60.00%
Final Assessment	40.00%

Details of Continuous Assessment

Assessment Type	Assessment Description	% of Total Mark	CLO
Lab Exercise	Prepare a weekly report for each practical session	20%	CLO2
Presentation	Video Presentation	20%	CLO1
Test	Online Test	20%	CLO1

Reading List

Recommended Text

- **Agrios, G. N 2005, *Plant Pathology*, 5 Ed., Academic Press**

Reference Book Resources

- **Leonard, K.J. & W.E. Fry 1989, *Plant Disease Epidemiology*, McGraw-Hill Publishing Company**
- **Cynthia Westcott,Ralph Kenneth Horst 2001, *Westcott's Plant Disease Handbook*, 6 Ed., Springer Science & Business Media [ISBN: 0-7923-8663-9]**
- **John A. Lucas 1998, *Plant Pathology and Plant Pathogens*, 3 Ed., Blackwell Science Ltd, Blackwell publishing company**
- **Sharma P.D 2004, *Plant Pathology*, Rastologi Publication Gangotri Shivagi Road, Meerut, India**
- **Robert Nicholas Trigiano, Mark Townsend Windham, Alan S. Windham. 2004, *Plant Pathology: Concept and Laboratory exercises*, CRC Press**

Article/Paper List: This Course does not have any article/paper resources

Other References: This Course does not have any other resources