UNIVERSITI TEKNOLOGI MARA

AGC706: INSECT PATHOLOGY

Course Name (English)	INSECT PATHOLOGY APPROVED
Course Code	AGC706
MQF Credit	3
Course Description	This course looks at the constant on-going warfare between plants and their pathogens; how plants have evolved to defend themselves and the mechanisms that pathogens have evolved to gain entry and nutrients from their host. Initially we look at the wide spectrum of micro-organisms that can attack plants; these include fungi, bacteria, viruses and nematodes. Then we assess how environmental factors are important in disease development. We look at mechanisms of controlling plants diseases including breeding methods, biological control and chemical control as well as environmental aspects. We examine the impact of plant diseases in natural and agricultural systems and investigate the importance of quarantine in the protection of Australian native flora and crop plants.
Transferable Skills	Knowledge of Insect Pathology in Agriculture
Teaching Methodologies	Lectures, Discussion, Presentation, Journal/Article Critique
CLO	CLO1 Observe the major groups of organisms that cause plant diseases CLO2 Analyze and interpret an appreciation of the environmental factors that induce plant diseases CLO3 Observe the mechanisms plants use to defend themselves and that pathogens use to attack plants CLO4 Develop working knowledge the impact of plant diseases on human society and the methods that we can employ to control plant diseases CLO5 Integrates with group members in the group discussion, writing, presentations, as well as in the lecture room about plant diseases
Pre-Requisite Courses	No course recommendations

Topics
1. Introduction to the field of plant pathology 1.1) Mycology 1.2) Plant Pathogens
2. The major plant pathogen groups and identification 2.1) The role of fungi in the environment 2.2) Fungi: Ascomycota - macro and micro cups and Imperfect Ascos (Deuteromycota) 2.3) Basidiomycota- the fungi we see and the famine makers 2.4) Lower fungi- tree friends, frog foes 2.5) Oomycota: the water moulds and the Irish connection
3. The major plant pathogen groups and identification 3.1) Bacteria and Phytoplasma 3.2) Viral Plant Pathogen 3.3) Virus vector transmission 3.4) Nematodes
4. Genetic resistance 4.1) Mechanisms of resistance and pathogenesis 4.2) Genetics of resistance and virulence 4.3) Breeding for resistance including GM options 4.4) Further breeding for resistance 4.5) Abiotic Disorders 4.6) Implications of climate change on plant diseases

5. Methods of control 5.1) Epidemiology and cultural control 5.2) Chemical Control + fungicide resistance 5.3) Biological Control of plant pathogens and IPM 5.4) Biological Control of weeds
6. Impact of control on society 6.1) Disease diagnostics 6.2) Genetic diversity 6.3) Molecularisation of diagnostics
7. Eukaryotic invertebrate genome of crop pest insects 7.1) Tree Crop Disease 7.2) Historical impact of plant diseases 7.3) Horticultural Diseases In Qld 7.4) Diseases in pasture

Assessment Breakdown	%
Continuous Assessment	70.00%
Final Assessment	30.00%

Details of Continuous Assessment

Assessment Type	Assessment Description	% of Total Mark	CLO
Assignment	The use of pathogens to control insect pest	30%	CLO2
Presentation	Video Presentation on Disease Management	10%	CLO5
Test	Online Test	15%	CLO1
Test	Online Test	15%	CLO3

Reading List

Recommended Text

- **George N Agrios 2005, *Plant Pathology*, 5 Ed., Academic Press [ISBN: 9780120445653]**

Article/Paper List

This Course does not have any article/paper resources

Other References

- **book Barnett,H.L & Barry B. Hunter 1998, *Illustrated genera of imperfect fungi*, APS Press, St. Paul, Minn**
- **book George B. Cummins & Yasuyuki Hiratsuka. 2003, *Illustrated genera of rust fungi*, APS Press, St. Paul, Minn**
- **book Richard T. Hanlin & Carol G. Hahn. Publisher 1990, *Illustrated genera of ascomycetes*, APS Press, St. Paul, Minn**
- **book Denis Persley & Tony Cooke 1993, *Diseases of fruit crops*, Dept. of Primary Industries Queensland, Brisbane**
- **book Denis Persley & Tony Cooke Publisher 1994, *Diseases of vegetable crops*, Dept. of Primary Industries, Brisbane**