AGRI30032 Plant Health and Improvement

Credit Points:	12.50
Level:	3 (Undergraduate)
Dates & Locations:	2011, Parkville This subject commences in the following study period/s: Semester 1, Parkville - Taught on campus.
Time Commitment:	Contact Hours: Twenty four hours of lectures, 36 hours of practicals (total 60 hours) Total Time Commitment: Sixty hours contact time; 60 hours directed study, assessment and readings (total 120 hours)
Prerequisites:	N/A
Corequisites:	N/A
Recommended Background Knowledge:	208-293 Plant Growth Processes, or equivalent
Non Allowed Subjects:	N/A
Core Participation Requirements:	For the purposes of considering request for Reasonable Adjustments under the Disability Standards for Education (Cwth 2005), and Students Experiencing Academic Disadvantage Policy, academic requirements for this subject are articulated in the Subject Description, Subject Objectives, Generic Skills and Assessment Requirements of this entry. The University is dedicated to provide support to those with special requirements. Further details on the disability support scheme can be found at the Disability Liaison Unit website: http://www.services.unimelb.edu.au/disability/
Coordinator:	Assoc Prof Paul Taylor
Contact:	**Melbourne School of Land & Environment Student Centre** Ground Floor, Land & Food Resources (building 142) *Enquiries* Phone: 13 MELB (13 6352) Email: **13MELB@unimelb.edu.au (mailto:13MELB@unimelb.edu.au)**
Subject Overview:	This subject outlines the methods used to identify pathogens causing plant diseases, the consequences of diseases for plant productivity; and plant breeding techniques used to identify and capture plant traits within populations. The links between these two areas are explored as plant breeders and pathologists seek novel genetic material capable of resisting or tolerating plant pathogens. The concept of Plant Biosecurity will be introduced where Australia's plant resources are safeguarded through adequate security and quarantine. Topics covered include: • taxonomy, identification and biology of the main groups of plant pathogens and abiotic causes of plant diseases; • host pathogen relationships, and the nature of disease resistance and pathogenesis; • methods to identify pathogens, and development of tools for diagnosis, • the processes leading to plant disease epidemics and their evaluation; • principles and methodology of plant breeding; • basic population genetics and genetic development of quantitative traits; • evolutionary processes and genetic variability of plant and pathogen populations; • world-wide distribution and conservation of plant genetic resources; • methods of breeding self– and cross-pollinating plants; • the management and integrated control of plant diseases. Practical work includes the identification and diagnosis of common diseases; and the development of skills in research techniques and methodology in plant pathology and plant breeding.
Objectives:	On completion of this subject, students will: • understand the importance of genetic resources; • be familiar with the differences between self-pollinated and cross-pollinated crops; • understand the principles and methodology of plant breeding and improvement; • be familiar with the biology and taxonomy of the major biotic causes of disease;

	• be aware of the factors leading to disease epidemics; • be capable of diagnosing common diseases of agricultural and horticultural crops; and • be able to formulate a practicable approach to integrated control in commercial species.
Assessment:	Two-hour end-of-semester examination worth 40% of final marks; a one-hour mid-semester examination worth 20% of final marks; practical class assessments worth 20% of final marks; and an assignment comprising a collection of plant diseases worth 20% of final marks.
Prescribed Texts:	G. N. Agrios 2004. Plant Pathology. 5th ed. Academic Press, Harcourt/Academic Press, USA.G.L. Schumann & C.J. D'Arcy. 2010 Essential Plant Pathology 2nd Ed. American Phytopathological Society Press, USA
Breadth Options:	This subject is not available as a breadth subject.
Fees Information:	Subject EFTSL, Level, Discipline & Census Date, http://enrolment.unimelb.edu.au/fees
Generic Skills:	On completion of this subject, students should have developed their: • Capacity to tackle unfamiliar problems; • Ability to integrate knowledge from different disciplines; • Communication skills, through written and oral presentations; • Quantitative analysis skills; and • Sense of intellectual curiosity
Related Course(s):	Bachelor of Agriculture Bachelor of Science
Related Majors/Minors/ Specialisations:	Agricultural Science