

Plant Virology

Obligatory module or Selective module	Plant Virology	PNH 2209
Semester	IV	
Module level	Undergraduate	
Module Coordinator		
Lecturer(s)	Dr.Ir. Sedyo Hartono, MP Dr. Ir. Sri Sulandari, SU.	
Type of Module	Lecture: 1 hour and 40 minutes Practical	
Status	C (Compulsory course)	
Exam	Written	
Number of participants	64	
Credit Points:	2/1 (5.02 ECTS)	
Description:	<p>Plant Virology is held to provide supplies to students in the Plant Protection Study Program to study viruses as a cause of plant diseases comprehensively. This course thoroughly discusses the history of plant virological discovery and development, virus definition, types of viruses, ways of replicating and transmitting viruses, virus bioecology, how to diagnose and manage them.</p> <p>After taking this course students will have the main competence to explain what a virus is, its infection mechanism and its spread within the host, environmental factors that influence it, how it is transmitted, how it is identified, and how it is managed.</p> <p>Lectures will be given conventionally combined with learning methods based on student centered learning (SCL). In this way, students can not only achieve core competencies but also have the courage to actively convey ideas and be able to critically criticize the material provided. Lectures are delivered in class through face-to-face and discussion. For enrichment of material students are given assignments independently in accordance with related material. Students are also given group assignments to make papers on pathogenic sutu by summarizing from various weighted journals then presented. Quiz is given several times without being scheduled. Through discussions and seminars students practice to think critically, analytically, creatively. Through various learning methods students are also expected to be able to submit scientific reports both verbally and in writing.</p> <p>To achieve competence in the form of students' skills, they are guided to recognize directly various types of plant viruses, to carry out isolation and characterization, how to inoculate, how to diagnose and</p>	

	manage them through direct practice in the laboratory and in the field. The results of the practicum are written reports and presented. At the end of the practicum a response is carried out. Character education is also taught in this course, especially in terms of honesty and discipline.
Academic goal (competency):	<ol style="list-style-type: none"> 1. Achieve competence to explain plant viruses in full about symptoms, classification and nomenclature, replication, ways of isolation and transmission, bioecology, ways of detection and how to manage them 2. Providing students with skills to carry out isolation, transmission, and how to detect various viruses and how to manage them 3. Equipping students to study plant viruses as research topics 4. Train students to be able to analyze problems in the field due to the attack of plant viruses 5. Instill values that must be possessed by researchers who have personality as scientists who are broad-minded, humble and ethical.
Course outcomes:	
<p>CO1 = Explains the virus as a plant pathogen comprehensively</p> <p>CO2 = After students have completed the Plant Virology course, they can know the true importance of plant viruses in agricultural ecosystems</p> <p>CO3 = Perform a diagnosis of plant viruses by various methods</p> <p>CO4 = Know how to control plant viruses effectively and efficiently</p> <p>CO5 = Become an active, independent, analytical student, and dare to communicate both in writing and in writing with the scientific basis obtained.</p>	
Contents:	
<ol style="list-style-type: none"> 1. General explanation and lecture contract and the significance of plant viruses as one component of the ecosystem 2. History of the discovery and latest development of plant viruses 3. Plant virus nomenclature 4. Recognition of symptoms 5. Plant viruses as macromolecules and genetic information packages 6. Isolation and purification of plant viruses 7. Replication of plant viruses 8. Transmission and spread of plant viruses 9. Ecology and epidemiology of plant viruses 10. Basics of plant virus diagnosis 11. Management of plant viruses 	
Which previous course required? Plant Protection, Phytopathology	
Literature:	
<ol style="list-style-type: none"> 1. Agrios, G.N. 1994. Plant Pathology. Fourth Ed. Acad. Press. San Diego. 2. Bos, L. 1983. Introduction to Plant Virology. Pudoc. Wageningen. The Netherlands. 3. Duncan, J.M. and L. Torrance (Ed.). 1992. Technique for Rapid Detection of Plant Pathogens. Blackwell Sci. Publ. 4. Hampton, R.O. E.M. Ball, S.H. de Boer (Eds). 1990. Serological Methods. APS Press. Minnesota. 5. Hull, R. 2002. Mathews' Plant Virology. Fourth Ed. Acad. Press. San Diego. 6. Matthews, R.F. 1992. Fundamental of Plant Virology. Acad. Press. California. 7. Triharso. 1992. Pengantar Virologi Tumbuhan. Gama Press. Yogyakarta. 	

8. van Regenmortel, M. H. V. C. M. Fauquet, D. H. L. Bishop, E. B. Carstens, M. K. Estes, S. M. Lemon, J. Maniloff, M. A. Mayo, D. J. McGeoch, C. R. Pringle & R. B. Wickner. (Eds.) (2000). *Virus Taxonomy. Seventh Report of the International Committee on Taxonomy of Viruses*, Academic Press. San Diego:
9. Foster, G.D. and Taylor S.C. 1998. *Method in Molecular Biology: Plant Virology Protocols*. Humana Press Inc. New Jersey.
10. Dijkstra, J & C.P. de Jager. 1998. *Practical Plant Virology. Protocols and Exercises*. Springer Lab. Manual.

Materials provided: PPT

Requirements for exam: 75% attendance set by the Faculty of Agriculture

Teaching method(s)	Lectures, discussion, assignment
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Workload (hrs).

1. Theoretical of course: 14 time in class
2. Lab work: pres test, laboratory work, report, post test and field work.
3. Home studies: assignments