Plant Disease Epidemiology

Obligatory module or Selective module	Plant Disease Epidemiology	PNH 4128
Semester	Odd semester	
Module level	Undergraduate	
Module Coordinator	Prof. Dr. Ir. Achmadi Priyatmojo, M.Sc.	
Lecturer(s)	Prof. Dr. Ir. Achmadi Priyatmojo, M.Sc. Prof.Dr.Ir. Susamto Somowiyarjo, M.Sc.	
Type of Module	1 hour and 40 minutes lecture Practical	
Status	E (elective courses)	
Exam	Written	
Number of participants		
Credit Points:	2/1 (5.02 ECTS)	
Description:	The Introductory Epidemiology Course for Plant Diseases is held to gain an understanding of the nature of plant diseases in populations, as an effort to understand the principles of applying epidemiological principles in controlling plant diseases. It states the limits and terms in epidemiology, the role of environmental factors in the development of plant diseases until the occurrence of epidemics, as well as the types of pathogen distribution and pathogen-spreading agents. The basic course material is further deepened in quantitative epidemiology so that students can better understand its application in the field, especially in relation to the application of control principles. Through this method, students practice to think critically, analytically, creatively and can express their opinions verbally through interactive discussions. Students who pass this course are expected to explore plant diseases in relation to space and time, and prepare a tactic to control plant diseases by basing epidemiological principles.	
Academic goal (competency):	1. Achieve competence in introductory courses in plant epidemiology, namely knowing and understanding the role of environmental factors until the occurrence of plant disease epidemics. 2. Providing students with provisions to manage plants to prevent or delay epidemics.	

Course outcomes:

CO1= Explain the types of pathogen distribution

CO2= Explain the factors that influence the development of the disease until an epidemic occurs.

CO3=Early testing to detect early plant diseases through the infection rate.

CO4= Making students active, independent-minded, and analytical thinking armed with an understanding of the knowledge received. **CO5=** Presenting the material obtained in a report and able to express in a good and systematic way.	

Contents:
1. Introduction; background and purpose of introductory lecture on epidemiology of plant diseases and employment contracts.
2. Discussion of the epidemiological limits and classification of plant diseases.
3. Discussion of epidemics, epidemics, endemics, and pandemics.
4. Discussion of qualitative and quantitative epidemiology.
5. Discussion of the type of pathogen dispersal and dynamics of pathogenic air borne populations.
6. Discussion of the type of pathogen dispersal and dynamics of soil borne pathogens.
7. Discussion on the type of pathogen dispersal and the dynamics of pathogen populations that are water borne and insect borne.
8. Discussion of types of disease distribution patterns.
9. Discussion on the development of single flower type diseases (simple interest disease).
10. Discussion on the development of compound interest type diseases (compund interest disease).
11. Discussion on the application of initial inoculum source suppression (X0) in disease control.
12. Discussion on the application of suppression of disease progression (r) in disease control
13. Discussion of the application of time manipulation (t) in disease control.

Which previous course required?

Literature:
 a. Textbooks
1. Cambpell, C.L. & Madden, L.V. 1990. Introduction of Plant Disease Epidemiology. Wiley-Interscience
2. Nagaradjan, S. & K. Muralidharan. 1995. *Dynamics of Plant Diseases.* Allied Publisher Limited. New Delhi India
3. *Van der Plank, JE 1963. Plant diseases: Epidemics and Control. Academic Press New York and London*

 b. Journal
1. Jurnal Perlindungan Tanaman Indonesia
2. Phytopathology (APS)
3. Plant Disease (APS)

Materials provided: Slide presentation/power point

Requirements for exam: 75% attendance

Teaching method(s)	Lectures, Discussion, Presentations/Assignments