MODULE HANDBOOK

	UNIVERSITAS PADJADJARAN **FACULTY OF MATHEMATICS AND NATURAL SCIENCES** **BACHELOR OF BIOLOGY PROGRAMME**	**COURSE CODE:** **D10D-4003**

Module designation	Plant Physiology
Semester in which the module is taught	4
Persons responsible for the module	1. Dr. Mohamad Nurzaman, M.Si 2. Dr. Tia Setiawati, M.Si 3. Drs. Ruly Budiono, M.Sc. 4. Rusdi, Ph.D 5. Asep Zainal Mutaqin, M.Si.
Medium of instruction	Indonesian
Relation to curriculum	Compulsory course
Teaching methods	Cooperative learning, Inquiry learning, Problem-based learning, Project-based learning
Workload	Total workload : 5440 minute = 90.67 hour Lecture and discussion : 2 x 50 minute x 16 week = 1600 minute = 26.67 hour Exercises : 2 x 60 minute x 16 week = 1920 minute = 32 hour Self-study : 2 x 60 minute x 16 week = 1920 minute = 32 hour
Credit points	2.00 (3.62 ECTS)
Required and recommended prerequisites for joining the module	Basic biology, Structure and Development of Plants
Module objectives/intended learning outcomes	Students able to: 1. Explain the basic concepts and scope of Plant Physiology and its relationship to related sciences (biochemistry, genetics, ecology) 2. Explain the properties of hypotonic, isotonic, and hypertonic processes, as well as active and passive transport. 3. Explain the role of water in transpiration, stomata opening and closing, and transport through the xylem 4. Identify nutrient deficiency symptoms in plants 5. Apply the concept of mass flow pressure to explain sugar translocation 6. Compare C3, C4, and CAM photosynthesis based on environmental adaptation. 7. Analyze the impact of photorespiration on C3 plant productivity 8. Analyze the relationship between lipid metabolism and energy storage 9. Analyze the influence of internal and external factors on plant growth and development 10. Analyze the role of plant hormones in growth and development. 11. Evaluate the mechanisms of plant response to stimuli in plant movement 12. Evaluate the effect of day length on flowering (short/long day plants
Contents	Plant Physiology is a compulsory course that studies the understanding and scope of plant physiology, which includes physiological processes that occur in plants. This course studies the relationship between water and plants, metabolic processes (photosynthesis and respiration), the role of phytohormones in influencing growth and development, the role of nutrients (macro and micronutrients), and their deficiencies. In addition, various types of motion in plants that are influenced by stimulation or no stimulation from the environment are also studied. This course also includes learning about the concept of secondary metabolites and their relationship with the development of plant biotechnology such as tissue culture.
Examination forms	Quiz, Midterm exam, Assignment, and Final exam, Project
Study and examination requirements	The minimum attendance in lectures is 80%. Final grades are evaluated based on quiz (15%), midterm exam (35%), assignment (15%), and final exam (35%)
Reading lists	1. Lakitan, B. 2010. Dasar-dasar Fisiologi Tumbuhan. Ed I cetakan 8. Jakarta: Rajawali Pers 2. Taiz, L. and Z. Eduardo. 1992. Plant Physiology. New York: The Benyamin Cumming Publishing Company. Inc. 3. Lakitan, B. (2010). Dasar-dasar fisiologi tumbuhan (1st ed.). Rajawali Press. 4. Taiz, L., & Zeiger, E. (2015). Plant physiology and development (6th ed.). Sinauer Associates.