

Module Descriptions

Module designation	Plant Physiology (course code MPB 3225)
Semester(s) in which the module is taught	5 th semester of Bachelor Programme in Biology
Person responsible for the module	Dr. Zulfa Zakiah, M.Si.
Lecture (s)	Dr. Zulfa Zakiah, & Mukarlina, M.Si
Language	Indonesia
Names of other study programmes with which the module is shared	-
Relation to curriculum	Compulsory course
Teaching methods	Lecture and practical sessions
Workload (incl. contact hours, self-study)	Total workload: 8.98 ECTS • Lecture: 40 hours (1.48 ECTS) • Assignment: 80.2 hours (2.97 ECTS) • Self-study: 74.52 hours (2.76 ECTS) • Practical sessions: 47.8 hours (1.77 ECTS) Practical sessions will complement and reinforce the concepts that are taught in the lectures by providing hands-on experience to apply the theoretical knowledge gained).
Credit points	4 credits
Required and recommended prerequisites for joining the module	Students have taken Plant Morphology and Anatomy (course code MPB 1204) and Plant Embryogenesis (course code MPB 2109)
Module objectives/intended learning outcomes	Intended Learning Outcomes (ILO) Knowledge (ILO-2) Able to integrate and apply biological science and other scientific fields that support the development of biological science. General Skill (ILO-3) Able to collaborate effectively within a team and to communicate actively, both orally and in writing, in the domain of biology. Specific Skill (ILO-6) Able to apply biological methodology and use instruments by prioritising work safety and able to apply in the management of tropical wetland resources. Course learning outcomes (CLO) CLO 8. Students are able to analyse the relationship between the structure and function of the cells, tissues, and organs that constitute living organisms. CLO 17. Students are able to collaborate within a team to successfully complete case studies or projects in the field of biology and to present the findings effectively. CLO 27. Students are able to operate biological instruments and methodologies with a primary emphasis on ensuring safety during the observation and measurement of biological and environmental objects.

Content	The Plant Physiology course studies the meaning and scope of plant physiology, water and plant cells, Organic molecules in plants, The relationship between plants and water, Provision of nutrients in the soil, Absorption and distribution of nutrients in plants, Transport of nutrients and water, Transpiration, Photosynthesis, Translocation in phloem, Respiration, Assimilation and Fixation of Nitrogen and Sulfur, Germination, Plant growth and development, Biosynthesis of phytohormones, Role of phytohormones and plant regulators, Movement in plants and Photoperiodism, Dormancy and aging process, Physiology of stresses.
Examination forms	- Theory 75% - Midterm - Final Exams - Assignment - Activity - Lab works 25%
Study and examination requirements	75% attendance
Reading list	- Taiz, L. and E. Zeiger. (2015). Plant Physiology. The Benjamin Cummings Publishing. California. - Bhatla, S. C., & Lal, M. A. (2018). Plant Physiology, Development and Metabolism. Springer. - Salisbury, F.B. and C.W. Ross. (1995). Fisiologi Tumbuhan. (terjemahan Plant Physiology oleh Lukman dan Sumaryanto). Penerbit ITB. Bandung. - Neil A. Campbell, Jane B. Reece, (2008), 8th ed. Biology, Benjamin Cummings, San Francisco - Bahadur, B., Sahijram, M.V.R.L. and Krishnamurthy, K.V. (2015). Plant Biology and Biotechnology Plant Biology and Biotechnology: Volume I: Plant Diversity, Organization, Function and Improvement. Springer India.