

Module Descriptions

Module designation	Botany mangrove (course code MPB 2235)
Semester(s) in which the module is taught	5 th semester of Bachelor Programme in Biology
Person responsible for the module	Dr. Rafdinal, M.Si.
Lecture (s)	Dr. Rafdinal, M.Si. , Dr. Elvi Rusmiyanto P.W.
Language	Indonesia
Names of other study programmes with which the module is shared	-
Relation to curriculum	Elective course
Teaching methods	Lecture, lab works and case Project
Workload (incl. contact hours, self-study)	Total workload: 7.76 ECTS ○ Lecture: 26.6 hours (0.99 ECTS) ○ Assignment: 60.1 hours (2.23 ECTS) ○ Independent study: 56 hours (2.07 ECTS) ○ Practical sessions: ● Labwork: 47.8 hours (1.77 ECTS) ● Fieldwork: 18.99 hours (0.7 ECTS)
Credit points	3 credits
Required and recommended prerequisites for joining the module	-

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. The ability to analyze the relationship between the structure and function of the cells, tissues, and organs that constitute living organisms. CLO 11. The ability to analyze the interactions among living organisms, ranging from the population level to the biosphere for understanding ecological dynamics. CLO 17. The ability to collaborate within a team to successfully complete case studies or projects in the field of biology and to present the findings effectively. CLO 18. The ability to systematically compile and communicate biological research findings based on valid data across various scientific communication formats, including scientific reports, articles, posters, and oral presentations. CLO 27. The ability to operate biological instruments and methodologies by prioritising work safety in the observation and measurement of biological and environmental objects.
Content	The subject exposes students to the basic knowledge required to understand Botany mangrove. OBJECTIVES to learn Global distribution, Extent of mangroves in various countries, distribution, damage and reclamation caused in the recent past. Taxonomy, Morphology and anatomy - temporal and regional variations; Physiology and biochemistry, Factors affecting various growth parameters. Pollination biology, Types of reproduction, seed propagation, dispersal and establishment. Ecological and environmental conditions that affect mangrove ecosystems.
Examination forms	- Theory 70% - Midterm 25% - Final Exams 25% - Assignment 10% - Group/Individual Activity 10% - Practical sessions (labwork and fieldwork) 30%
Study and examination requirements	75% attendance

Reading list	1. Abdullah, K., A.M Said and D. Omar. (2014). Community-Based Conservation in Managing Mangrove. <i>Procedia - Social and Behavioral Sciences</i>, 153, 121- 131. 2. Bengen DG. 2004. Technical Guidelines for the Identification and Management of Mangrove Ecosystems. Centre for Coastal and Marine Resources, Bogor Agricultural University. Bogor 3. Priyono A. 2010. Practical Guide to Mangrove Rehabilitation Techniques in Indonesian Coastal Areas. UNDIP Office of Marine Affairs. Central Java. 4. Li, S., X. Meng, Z. Ge and L. Zhang. (2015). Evaluation of The Threat from SeaLevel Rise to The Mangrove Ecosystems in Tieshangang Bay, Southern China. <i>Ocean & Coastal Management</i>, 109, 1-8. 5. Tomlinson, P. B. (2016). <i>The Botany of Mangroves</i> (2nd ed.). Cambridge University Press. 6. Dharmawan I W E and Pramudji. (2014). Guide to Monitoring the Status of Mangrove Ecosystems. COREMAP CTI LIPI. Jakarta. 7. Jurnal, report, brochure terkait
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