


## MODULE HANDBOOK

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|  | <b>UNIVERSITAS PADJADJARAN</b><br><b>FACULTY OF MATHEMATICS AND NATURAL SCIENCES</b><br><b>BACHELOR OF BIOLOGY PROGRAMME</b>  | <b>COURSE CODE:</b><br><b>D10D-2002</b> |
| <b>Module designation</b>   | Plants Structure and Development 1  |   |
| <b>Semester in which the module is taught</b>                                     | 2   |   |
| <b>Persons responsible for the module</b>   | 1. Joko Kusmoro, MP<br>2. Muhamad Agung Triyudha Agustiana, M.Si<br>3. Dr. Suryana, S.Si., MP.<br>4. Dr. Budi Irawan, M.Si  |   |
| <b>Medium of instruction</b>  | Indonesian  |   |
| <b>Relation to curriculum</b>   | Compulsory course   |   |
| <b>Teaching methods</b>   | Student-Centered Learning, Project-based Learning, Collaborative Learning   |   |
| <b>Workload</b>   | Total workload : 5440 minutes = 90.67 hours<br>Lecture and discussion : 2 x 50 minutes x 16 weeks = 1600 minutes = 26.67 hours<br>Exercises : 2 x 60 minutes x 16 weeks = 1920 minutes = 32 hours<br>Self-study : 2 x 60 minutes x 16 weeks = 1920 minutes = 32 hours   |   |
| <b>Credit points</b>  | 2.00 (3.62 ECTS)  |   |
| <b>Required and recommended prerequisites for joining the module</b>              | Basic biology   |   |
| <b>Module objectives/intended learning outcomes</b>                               | 1. Able to systematically identify and explain the morphological structure of the vegetative organs of roots, stems, leaves, and the generative organs of flowers, fruits, and seeds of higher plants<br>2. Able to analyze the shape and type of modifications of the vegetative and generative organs of plants and their relationship to function and environmental adaptation<br>3. Able to compare variations in the external structure of plants between species as a basis for plant description and documentation studies<br>4. Able to compile plant descriptions based on morphological rules and botanical terminology accurately and consistently<br>5. Able to create standardized botanical illustrations of plant organs to support scientific communication in the field of botany. |   |
| <b>Contents</b>   | 1. Introduction<br>2. Plant Organs<br>3. Root Morphology and Modifications<br>4. Stem Morphology and Modifications<br>5. Morphology of Single Leaves (Leaf shape, margins, tip and base, venation, and leaf surface)<br>6. Morphology of Compound Leaves (Pinnate, Palmate)<br>7. Leaf Arrangement (Phyllotaxis)<br>8. Flower Morphology (Flower Parts, Structure of a Single Flower)<br>9. Morphology of Compound Flowers<br>10. Symmetry, flower formulas and diagrams<br>11. Fruit Morphology<br>12. Seed Morphology<br>13. Plant Description Techniques<br>14. Phytography Techniques (Botanical Illustration)  |   |
| <b>Examination forms</b>  | Quiz, Midterm exam, Assignment, and Final exam  |   |
| <b>Study and examination requirements</b>   | The minimum attendance in lectures is 80%. Final grades are evaluated based on quiz (10%), midterm exam (15%), assignment (10%), final exam (15%), project and participation (50%)  |   |

**Reading lists**

1. Tjitrosoepomo G. 1994. Morfologi Tumbuhan. Yogyakarta. Gadjah Mada University Press.
2. Clarke I and Lee H. 1994. Name that Flower, The Identification of Flowering Plants. Melbourne University Press
3. Harris JG and Harris MW. 2001 Plant Identification Terminology, an illustrated Glossary. Utah: Spring Lake Publishing
4. Hidayat EB. 1992. Morfologi dan Perkembangan Tumbuhan. FMIPA ITB
5. Bell AD. 1991. Plant Form, an Illustrated Guide to Flowering Plant Morphology. Oxford University Press.
6. Rosanti D. 2013. Morfologi Tumbuhan. Jakarta: Penerbit Erlangga
7. Stearn WT. 1998. Botanical Latin. Timber Press, Inc. Portland Oregon
8. Baumgardt JP. 1994. How to Identify Flowering Plant Family. Timber Press, Inc. Portland Oregon.
9. L M, Rifnas & Vidanaphirana, Nisansala. (2023). Plant Morphology. Univercity of Colombo. Sri Lanka.