

Undergraduate Programme in Biology

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MODULE HANDBOOK

Module Name	Plant Structure and Development
Module level, if applicable	Bachelor
Code, if applicable	BIO414007
Subtitle, if applicable	-
Courses, if applicable	Plant Structure and Development
Semester(s) in which the module is taught	2 nd (second)
Person responsible for the module	Dias Idha Pramesti, S.Si., M.Si
Lecturer(s)	Ika Nugraheni Ari Martiwi, S.Si., M.Si., Dr. Shilfiana Rahayu, M.Sc Dias Idha Pramesti, S.Si., M.Si
Language	Indonesian
Relation to curriculum	Compulsory course in the first year (2nd semester) Bachelor Degree
Type of teaching, contact hours	100 minutes of lectures, 170 minutes labwork and 120 minutes structured activities per week
Workload	Total workload is 136 hours per semester, which consists of 100 minutes lectures per week for 16 weeks, 120 minutes structured activities per week, 120 minutes individual study per week, 170 minutes laboratory work in total is 16 weeks per semester, including mid-exam and final exam
Credit points	3 credits (4,5 ECTS)
Requirements according to the examination regulations	Students must meet a minimum attendance of 75% of the total meetings to be able to take the final exam
Recommended prerequisites	No prerequisites are stated on
Module objectives/intended learning outcomes	After completing this course, the students: CO 1 describe the structure and development of morphology and anatomy in higher plants CO 2. analyze the relationship between the external and internal structures of plants accurately CO 3 correlate the development of morphological and anatomical structures of plant organs with reproductive mechanisms CO 4 describe the characteristics of morphological and anatomical structures in certain plants
Content	1. The structure and morphology of plants and their variations 2. Plant cells and tissues 3. The structure and development of plant anatomy 4. Reproduction mechanism of higher plants 5. Plant Embryogenesis

Study and examination requirements and forms of examination	The final mark will be weighted as follows:					
	NO		Assessment methods (components, activities)		Weight (percentage)	
	1		Final Examination		30%	
	2		Mid-Term Examination		30%	
	3		Labwork		25%	
	4		Class Activities: Quiz, Homework, etc.		15%	
	The final assessment is expressed in the form of a letter value converted from a number value with the following categories:					
	NO		Number Value		Letter Value	
	1		≥ 95		A	
	2		90-94.99		A-	
	3		85-89.99		A/B	
	4		80-84.99		B+	
	5		75-79.99		B	
	6		70-74.99		B-	
7		65-69.99		B/C		
8		60-64.99		C+		
9		55-59.99		C		
10		50-54.99		C-		
11		55-34.99		D		
12		<35		E		
Media employed	White-board, Lcd Projector, e-learning (https://daring.uin-suka.ac.id/)					
Reading list	1. Beck, C.B. An Introduction to Plant Structure and Development, 2010,. Cambridge. 2. Lersten, N.R. 2004. Flowering Plant Embryology. Blackwell Publishing. 3. Evert, R.F. 2006. Esau's Plant Anatomy: Meristems, Cells, and Tissues of the Plant Body: Their Structure, Function, and Development, Third Edition. John Wiley & Sons, New York. 4. Campbell Biology, 2019, Jane Reece, Lisa A. Urry, Peter V. Minorsky, Michael L. Cain, Steven A. Wasserman, Pearson. 5. Tjitrosoepomo, G. 2020. Morfologi Tumbuhan. Gadjah Mada University Press. Yogyakarta 6. Rosanti, D. 2013.Morfologi Tumbuhan. Penerbit Erlangga.Jakarta. 7. Suradinata, T.S. 1998. Struktur Tumbuhan. Penerbit Angkasa Bandung. 8. Hidayat, E. B. 1995. Anatomi Tumbuhan Biji. Penerbit ITB. 9. Nugroho, L.H. 2016. Jaringan Sekretori Tumbuhan. Gadjah Mada University Press. Yogyakarta 10. Maheswari, P. 1950. An introduction to The Embryology of Angiosperms. First Edition. McGraw-Hill Book Company, Inc. New York-Toronto-London 11. Nugroho, L.H., Purnomo, I. Sumardi. 2010. Struktur dan Perkembangan Tumbuhan. Penebar Swadaya. Jakarta. 12. Martiwi, I.N., L.H. Nugroho, B.S. Daryono, R. Susandarini. Morphological Variability and Taxonomic Relationship of Sorghum bicolor (L.) Moench Accessions Based on Qualitative Characters. Annual Research & Review in Biology 35(6): 40-52, 2020 13. Wang, B., Bauer, A., Gómez-Felipe, A., Silveira, S. R. and Kierzkowski, D. (2025). Confocal Live Imaging of Reproductive Organs Development in Arabidopsis. Bio-protocol 15(3): e5177. DOI: 10.21769/BioProtoc.5177 14. Silveira, S. R., Le Gloanec, C., Gómez-Felipe, A., Routier-Kierzkowska, A. L. and Kierzkowski, D. (2022). Live-imaging provides an atlas of cellular growth dynamics in the stamen. Plant Physiol. 188(2): 769–781 15.Torii, K. U. (2021). Stomatal development in the context of epidermal tissues. Ann. Bot. 128, 137-148. https://doi.org/10.1093/aob/mcab052					



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	PLO 1	PLO 2	PLO 3	PLO 4	PLO 5	PLO 6	PLO 7	PLO 8	PLO 9	PLO 10	PLO 11
CO 1				√		√	√				
CO 2				√		√	√				
CO 3				√							
CO 4				√							