



**THE MODULE HANDBOOK**  
**DOCTOR BIOLOGICAL SCIENCES STUDY PROGRAM**  
**FACULTY OF BIOLOGY**

**SELECTED TOPIC FOR DISSERTATIONS**

**Plant Physiology**

<b>Course code</b>	BIDB203196
<b>Course level</b>	Doctoral Program
<b>Semester/ term</b>	Odd/even
<b>Course coordinator</b>	Prof. Dr. Diah Rachmawati, S.Si., M.Si.
<b>Lecture(s)</b>	Prof. Dr. Diah Rachmawati, S.Si., M.Si. Dr. Tri Rini Nuringtyas, S.Si., M.Sc.
<b>Language</b>	Indonesian/English
<b>Classification within the Curriculum</b>	Compulsory Specialization Courses
<b>Teaching format/ class hours per week during the semester</b>	This course is planned to have 14 teaching weeks and 2 weeks of examination.
<b>Workload</b>	1,125 hours/day 5 days/week 5,625 hours/week 16 Weeks/Semester  total workload : 90 hours/3,6 ECTS
<b>Credits</b>	2-0 credits / 3.6 ECTS
<b>Requirements</b>	-
<b>Program Learning Outcome</b>	CPL 3.1. After completing this program, the graduates will be able to discover or develop new scientific theories/concepts/ideas in biology
<b>Course Learning Outcome</b>	BIDB203196.1 By the end of this course, students will be able to study and analyze the cellular and molecular mechanisms of primary and secondary metabolite biosynthesis in plants and their roles in plant growth.  BIDB203196.2 By the end of this course, students will be able to integrate and evaluate information related to primary and secondary metabolites in plant development from various sources.
<b>Course Description</b>	This course examines plant growth processes and the cellular and molecular mechanisms underlying each phase of plant development. The topics include primary metabolism related to the synthesis, accumulation, allocation, and partitioning of metabolites



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	<p>and the influencing factors, plant productivity, as well as the biosynthesis and functions of secondary metabolites in plants. It also explores the interaction between internal and environmental factors on the biosynthesis of primary and secondary metabolites. By the end of the course, students will be able to analyze and address issues related to the production of primary and secondary metabolites and their roles in plant growth.</p>
<b>Assessments</b>	<p>The assessment for Selected Topic for Dissertations (Plant Physiology) is based on two main components, with the respective criteria and weights:</p> <p>A. Participatory Activity (20%)</p> <ul style="list-style-type: none"><li>• Participation (20%)</li></ul> <p>B. Project (80%)</p> <ul style="list-style-type: none"><li>• Project Result/Case Study/Project Based Learning result (80%)</li></ul>
<b>Study Media and Literature</b>	<ol style="list-style-type: none"><li>1. Bhatla, S.C. &amp; Lal, M.A. 2018. Plant Physiology, Development and Metabolism. Springer. Singapore.</li><li>2. Davies, P.J. 2010 Plant Hormone. Biosynthesis, Signal Transduction, Action. Revised 3rd Edition. SpringerDordrecht Heidelberg Londorn New York.</li><li>3. Lambers, H., F.S. Chapin III, T.L. Pons. 2008. Plant Physiological Ecology. Springer-Verlag New York, Inc.</li><li>4. Marschner, P. 2012. Mineral nutrition of higher plants. Third Edition. Acad Press, London</li><li>5. Carocho, M., Heleno, S.A., Barros, L. 2023 Natural Secondary Metabolites. Springer, Cham</li><li>6. Westhoff, P. 1998. Molecular plant development from gene to plant. Oxford University Press.</li><li>7. Taiz, L. and E. Zieger. 2015. Plant Physiology 5th Ed. Sinauer Associates, Inc., Publisher. Sunderland, Massachusetts.</li></ol>