THE MODULE HANDBOOK
DOCTOR BIOLOGY STUDY PROGRAM
FACULTY OF BIOLOGY

SELECTED TOPIC FOR DISSERTATIONS

Plant Development Physiology

Course code	BIO-80902
Course level	Doctoral Program
Semester/ term	Odd/even
Course coordinator	Prof. Dr. Diah Rachmawati, S.Si., M.Si.
Lecture(s)	Prof. Dr. Diah Rachmawati, S.Si., M.Si. Prof. Dr. Kumala Dewi, M.Sc.St.
Language	Indonesian/English
Classification within the Curriculum	Compulsory
Teaching format/ class hours per week during the semester	This course is planned to have 14 teaching weeks and 2 weeks of examination.
Workload	90 hours
Credits	2-0 credits / 3.6 ECTS
Requirements	Receiving approval from the Supervisory Team.
Program Learning Outcome	CPL 2.1. Upon completing this program, the graduates demonstrate an understanding of of the scientific philosophy of biology which is related in depth to structure, function, diversity, reproduction, evolution and engineering of biological systems. CPL 2.2. After attending this program, graduates demonstrate an understanding of substantial and leading theory in the field of biology/biological resources in order to support education for sustainable development CPL 3.1. After completing this program, the graduates will be able to discover or develop new scientific theories/concepts/ideas in biology
Course Learning Outcome	BIDB243044.1 By the end of this course, students will be able to explain the cellular and molecular mechanisms involved in various plant developmental processes. BIDB243044.2 By the end of this course, students will be able to integrate and critically evaluate information from various sources related to plant developmental physiology. BIDB243044.3 By the end of this course, students will be able to analyze issues related to plant developmental physiology and communicate their findings

	effectively, making appropriate use of information technology.
Course Description	This course examines plant developmental processes and the underlying cellular and molecular mechanisms at each phase of plant growth. It explores genetic and hormonal regulation in development, gene expression analysis, and plant responses to various environmental conditions from cellular, molecular, biochemical, and physiological perspectives. This course provides a comprehensive understanding of plant developmental mechanisms by addressing key developmental stages throughout the plant life cycle from seed development, germination, and growth of juvenile and mature plants, to reproduction and senescence as well as the internal and external factors influencing these processes.
Assessments	The assessment for Selected Topic for Dissertations (Plant Developmental Physiology) is based on three Component, with the respective criteria and weights: A. Mid-term Exam (20%) B. Final-term Exam (20%) C. Participatory Activity • Presentation (20%) • Case Study (40%)
Study Media and Literature	**Main:** 1. Davies, P.J. 2010 Plant Hormone. Biosynthesis, Signal Transduction, Action. Revised 3rd Edition. SpringerDordrecht Heidelberg Londorn New York. 2. Leyser, O & Day, S. 2002. Mechanism in Plant Development. Blackwell Science, UK 3. Lambers, H., F.S. Chapin III, T.L. Pons. 2008. Plant Physiological Ecology. Springer-Verlag New York, Inc. 4. Marschner, P. 2012. Mineral nutrition of higher plants. Third Edition. Acad Press, London 5. Pessarakli, M. 2014. Handbook of Plant and Crop Physiology. 3rd Edition. CRC Press. Taylor & Francis Group. Boca Raton London New York 6. Westhoff, P. 1998. Molecular plant development from gene to plant. Oxford University Press. 7. Taiz, L. and E. Zieger. 2015. Plant Physiology 5th Ed. Sinauer Associates, Inc., Publisher. Sunderland, Massachusetts **Additional:** 1. Bewley, I. D & M. Black 1994. Seeds. Physiology of development and germination. Plenum Press, N. York

	2. Pareek, A., Sopory, S.K., Bohnert, H.J. and Govindjee. 2010. Abiotic Stress Adaptation in Plants: Physiological, Molecular and Genomic Foundation. Springer. The Netherlands.