THE MODULE HANDBOOK
DOCTOR BIOLOGICAL SCIENCES STUDY PROGRAM
FACULTY OF BIOLOGY

SELECTED TOPIC FOR DISSERTATIONS

Capita Selecta

Course code	BIDB203103
Course level	Doctoral Program
Semester/ term	Odd/even
Course coordinator	Prof. Dr. Endang Semiarti, M.S., M.Sc.
Lecture(s)	Dr. Eko Agus Suyono,M.App.Sc Prof. Dr. Endang Semiarti, M.S., M.Sc. Dr. Miftahul Ilmi, S.Si., M.Si.
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	1,125 hours/day 5 days/week 5,625 hours/week 16 Weeks/Semester total workload : 90 hours/3,6 ECTS
Credits	3.6 ECTS
Requirements	-
Program Learning Outcome	CPL 1.1. Upon completing this program, the graduates demonstrate an attitude of being able to contribute to improving the quality of life in society, nation and state, and the progress of civilization based on Pancasila CPL 1.2. Upon completing this program, the graduates demonstrate an attitude of being able to demonstrate honesty, responsibility, self-confidence, emotional maturity, ethics, and awareness of being a lifelong learner CPL 1.3. Upon completing this program, the graduates demonstrate an attitude of being able to internalize academic values, norms and ethics. CPL 3.4. After completing this program, the graduates will be able to communicate research results through reputable media and scientific publications to the academic community and/or directly to the wider community

	CPL 3.5. After completing this program, the graduates will be able to demonstrate academic leadership and increase independent learning capacity
Course Learning Outcome	BIDB203103.1 By the end of this course, students will be able to discover or develop new theories, concepts, or scientific ideas in the field of animal and plant biotechnology, involving both unicellular and multicellular organisms BIDB203103.2 By the end of this course, students will be able to to contribute to the advancement and application of biology through scientific research based on scientific principles and ethics, by employing interdisciplinary, multidisciplinary, or transdisciplinary approaches to address problems in animal and plant biotechnology involving both unicellular and multicellular organisms. BIDB203103.3 By the end of this course, students will be able to manage and formulate valid research data in the field of animal and plant biotechnology (both unicellular and multicellular), in a responsible manner by upholding academic integrity and promoting anti-plagiarism principles.
Course Description	This course covers special dissertation-related topics in the field of in vitro culture and plant biotechnology. It provides an overview of improving the quality of individuals/organisms through biotechnology, including in vitro culture and genetic engineering.
Assessments	The assessment for Selected Topic for Dissertations (Kapita Selekta) is based on three components, with the respective criteria and weights: 1. Stuctured Assigment/Task (30%) 2. Final-Term Exam (40%) 3. Presentation (30%)
Study Media and Literature	**Main** 1. Semiarti, E., Indrianto, A.,Purwantoro, A., Machida, Y, and Machida C. (2011) Agrobacterium-Mediated Transformation of Indonesian Orchids for Micropropagation, Chapter 11th in: Scientific e-book Genetic Transformation ISBN 978-953-307-364-4, ed by M.Alvarez, InTech-Open Publisher, DOI: http://dx.doi.org/10.5772/intechopen.103839 2. Semiarti, E., Y.A. Purwestri, S. Rohman, and W.A. Putri (2022). Genetic Transformation in Prokaryotic and Eukaryotic Cells. Chapter 2 in “Molecular Cloning”, p 27-46, ed.by Sadik Dincer, IntechOpen Publisher, Print ISBN 978-1-80355-450-1, ISBN 978-1-80355-451-1, DOI: http://dx.doi.org/10.5772/intechopen.103839

3. Semiarti, E., Y.A. Purwestri, S. Rohman, and W.A. Putri (2023). Bioteknologi Tanaman, Gadjah Mada University Press, 1-178 halaman. ISBN: 978-623-359-167-6.
4. Andersen, R.A. 2005. Algal Culturing Technique. Elsevier Academic Press. UK.
5. Suyono, et al. 2024.The Effect of Various Photoperiodic Conditions and Zn2+ Concentrations on Growth Rate and Metabolite Content in Euglena sp. Journal of Tropical Life Science, Vol. 14, No. 2, 237 – 252 http://dx.doi.org/10.11594/jtls.14.02.04
6. Suyono, et al. 2024. Metabolite Compounds of Euglena sp. on Mass Cultivation System under MgCl2 and CaCl2 Salt Stress. International Journal on Advanced Science, Engineering and Information Technology, vol. 14, no. 3, pp. 1057-63, doi:10.18517/ijaseit.14.3.19820.

Additional

1. 1. Semiarti,E., S.Nopitasari, Y. Setiawati, M.D. Lawrie, A. Purwantoro, J. Widada, K. Ninomiya, Y. Asano, S. Matsumoto, Y.Yoshioka (2020). Application of CRISPR/Cas9 genome editing system for molecular breeding of orchids. Indones J Biotechnol 25(1), 2020, 61?68 | DOI 10.22146/ijbiotech.39485, www.jurnal.ugm.ac.id/ijbiotech
2. Semiarti E., Indrianto A., Purwantoro A., Martiwi I. N. A., Feroniasanti Y. M. L., Nadifah F., Mercuriana I. S., Dwiyani R., Iwakawa H., Yoshioka Y., Machida Y. and Machida C. (2010). High-frequency genetic transformation of Phalaenopsis amabilis orchid using tomato extract-enriched medium for the pre-culture of protocorms. The Journal of Horticultural Science and Biotechnology, Vol. 85 No. 3: 205-210 (2010)
3. Semiarti, E., Indrianto A, Purwantoro A., Isminingsih S., Suseno N., Ishikawa T., Yoshioka Y., Machida Y., and Machida C. 2007. Agrobacterium-mediated transformation of the wild orchid species Phalaenopsis amabilis. Plant Biotechnology.Vol. 24. No.3