THE MODULE HANDBOOK
DOCTOR BIOLOGY STUDY PROGRAM
FACULTY OF BIOLOGY

SELECTED TOPIC FOR DISSERTATIONS

Molecular Systematic

Course code	BIDB203125
Course level	Doctoral Program
Semester/ term	Odd/even
Course coordinator	Dra. Tuty Arisuryanti, M.Sc., Ph.D.
Lecture(s)	Dra. Tuty Arisuryanti, M.Sc., Ph.D. Sukirno, S.Si., M.Sc., Ph.D..
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	BIDB203125.1 By the end of this course, students will be able to explain the development of molecular systematics, analyze controversies in molecular systematics, and discuss the applications and prospects of molecular systematics. BIDB203125.2 By the end of this course, students will be able to design research and molecular techniques used in molecular systematics studies, explain species identification methods using DNA barcode and

	metabarcode, perform intra- and interspecific differentiation analyses (using genetic distance and evolutionary models), and construct phylogenetic trees based on Neighbour Joining (NJ), Maximum Likelihood (ML), and Bayesian Inference (BI) methods.. BIDB203125.3 By the end of this course, students will be able to use and compare free software for data analysis in molecular systematics.
Course Description	This course is delivered through blended learning and covers a collaborative range of topics, including the development and controversies in molecular systematics; applications and prospects of molecular systematics; research design and molecular techniques used in molecular systematics studies; species identification using DNA barcode and metabarcode methods; intra- and interspecific differentiation (genetic distance methods and evolutionary models); phylogenetic tree construction methods; and the use of free software in molecular systematics. The primary learning objective of this course is to provide knowledge of molecular systematics and skills in using software for data analysis.
Assessments	The assessment for Selected Topic for Dissertations (Molecular Systematic) is based on Project Component, with the respective criteria and weights: 1. Stuctured Assigment/Task (50%) 2. Project Result/Case Study/Project Based Learning result (50%)
Study Media and Literature	1. DeSalle, R., Giribet, G., Wheeler, W. 2013. Molecular Systematics and Evolution: Theory and Practice. Birkhäuser Ltd. 2. Stewart, C. 2014. Comparative DNA Sequencing as a Tool of Molecular Systematics Koros Press Ltd