THE MODULE HANDBOOK

Magister Biology Study Program
FACULTY OF BIOLOGY

NUMERICAL TAXONOMY AND PHYLOGENETICS OF PLANTS

Course code	BIMB 202212
Course level	Magister
Semester/ term	II / Even
Course coordinator(s)	Dr. Ratna Susandarini, M.Sc.
Lecture(s)	1. Rina Sri Kasiamdari, Ph.D. 2. Abdul Razaq Chasani, Ph.D.
Language	English and Indonesian
Classification within the Curriculum	Compulsory course from Laboratory of Plant Systematics
Teaching format/ class hours per week during the semester	This course is organised one class of maximum 25 students, and planned to have 14 teaching weeks and 2 weeks of examination.
Workload	Estimated working hour: 2 credits of theory and 1 credit of laboratory work.
Credits	2 – 1 credits
Requirements	Biosystematics
Program Learning Outcome	KN1: The graduates are **demonstrating knowledge and comprehend** biological theories, includes all aspects of biological studies at various levels in the organization of life GS2: The graduates are **able to manage** research data and **make decisions** in solving biological problems based on analytical or experimental studies and critical analysis of information SS1: The graduates are **able to conduct research** in the field of biology independently or in groups, and able to solve various biological-related problems
Course Learning Outcome	CLO 1: Students are able to compherensively understand methods in numerical taxonomy and phylogenetics and their application in Plant Systematics. CLO 2: Students are able to collect data and determine the right methods for data analysis using numerical taxonomy and phylogenetics.

	CLO 3: Students are able to use relevant softwares in numerical taxonomy for data analysis in their research, either using phenetic or phylogenetic approach. CLO 4: Students are able to appropriatelyand correctly interpret results of data analysis and use the results as basis for discussion and conclusion in their research.
Course Description	The course provides students with theoretical basis and logic on the application of quantitative data in Plant Systematics studies; Principles and methods of data analysis in numerical taxonomy and phylogenetics; Introduction to various softwares for data analysis in numerical taxonomy and phylogenetics; Interpretation and presentation of results of data analysis in scientific writing (thesis and journal article). The practical work gives students the opportunity to experience of learning how to collect data from plant specimens and analyze data using pre-prepared model and learn how to correctly interpret results of data analysis to solve various cases in Plant Systematic studies.
Assessments	Quiz, Individual assignment, Exam, Practical work.
Study Media	Power point, Lecture Notes, Demonstration, Data simulation, Numerical Taxonomic Software.
Literature	1. Everitt BS, Landau S, Leese M, Stahl D. (Eds). 2011. Cluster Analysis. 5th Edition, King's College London, UK. 2. Fielding AH. 2007. Cluster and Classification Techniques for the Biosciences Cambridge Univeristy Press, UK. Baran E, Warry F. 2008 Simple data analysis for biologists. WorldFish Center and the Fisheries Administration. Phnom Penh, Cambodia. 3. McDonald JH. 2008. Handbook of Biological Statistics. Sparky House Publishing Baltimore, Maryland. 4. Nei M, Kumar S. 2000. Molecular Evolution and Phylogenetics. Oxford Univesity Press. 5. Page RDM, Holmes EC. 1998. Molecular Evolution: A Phylogenetic Approach. Blackwell Publishing Ltd. 6. Journal article for case studies (in-class Focus Group Discussion) from international journals.