	UNIVERSITAS PADJADJARAN, FACULTY OFF MATHEMATICS AND NATURAL SCIENCES **BIOLOGY PROGRAMME (MASTER'S DEGREE)**	**COURSE CODE:** **D20D2110**
Module designation	Biosystematics	
Semester(s) in which themodule is taught	2	
Person(s) responsible for the module	1. Dr. Budi Irawan 2. Dr. Eneng Nunuz Rohmatullayaly	
Language	Indonesian	
Relation to curriculum	Compulsory Biology Master Study Program	
Teaching methods	Lecturer, Presentation and Discussion, PjBL (Project Based Learning)	
Workload	Total workload: 8160 minutes (90,67 hours) **CLASS** Lecture, discussion, presentation, PBL: 2 x 50'x 16 weeks = 1600 minutes (26.67 hours) Exercise: 2 x 60'x 16 weeks = 1920 minutes (32 hours) Private study: 2 x 60'x 16 weeks = 1920 minutes (32 hours)	
Credit points	2 SKS (3.62 ECTS)	

Required and recommended prerequisites for joining the module	-

Module objectives/intended learning outcomes	Learning Outcome: 1. To acquire knowledge and theories related to biological sciences which are spanning from cells and molecules, organisms, ecosystems, to the biosphere. 2. Communicating ideas, thoughts, and scientific arguments responsibly and based on academic ethics, through oral and written media to the academic community and the wider community. 3. Able to deepen or expand biology science by producing models/methods/development of multidisciplinary theories that are accurate, tested, and innovative, as applications and/or solutions for the management of biological resources and the environment. Course Learning Outcome: 1. After completing this course, students will be able to master the concepts and scope of biosystematics, as well as distinguish between various species concepts and speciation models, biogeography (phytogeography and zoogeography), and phylogenetics. 2. After completing this course, students will be able to communicate the results of their thoughts and arguments after selecting various examples of biosystematics research. 3. Students will be able to analyse various phylogenetic reconstruction models in order to obtain an in-depth understanding of appropriate reconstruction methods according to research objectives. Specific Learning Outcome: 1. Students are able to describe the concept and scope of plant biosystematics. 2. Students are able to distinguish and give examples of various species concepts and speciation models in plants. 3. Students are able to distinguish and give examples of various species concepts and speciation models in plants. 4. Students are able to demonstrate and analyse various models of phylogenetic and phytogeographic approaches. 5. Students are able to describe the concept of animal biosystematics. 6. Students are able to distinguish various species concepts and speciation models, as well as select and

	communicate examples of new species articles on the selected animal taxa. 7. Students are able to distinguish Biogeography/zoogeography, as well as select and communicate examples of Biogeography/zoogeography studies on the selected taxa. 8. Students are able to compare and analyze various phylogenetic reconstruction methods, as well as conclude the correct reconstruction method according to research objectives

Content	Systematic Biology or Biosystematics courses study the diversity of past and present organisms, and their relationships. This course will explore the relationships between species and other taxonomic units in the context of evolution. In addition, students will study various approaches in Biosystematics and their analysis. Materials: 1. Introduction: Lecture Contract, Syllabus 2. Definition and concept of biosystematics, position, and role 3. The concept of species and infraspecific categories 4. Numerical taxonomy and phenetic relationship analysis 5. The concept of phylogeny and its approach models 6. Biogeography: Phytogeography and Zoogeography 7. Analysis in biosystematics

Examination forms	Presentation, Projrct Based Learning (PjBL)
Study and examination requirements	Minimum attendance at lectures is 80%. Final score isevaluated based on: Forum Discussion Activity (10%) Assignment dan Presentation (30%) Mid Semester Exam (20%) End Semester Exam (20%)
Reading list	1. Pavlinov, I. Y. (2021). Biological systematics: history and theory. CRC Press. 2. Brower, A. V., & Schuh, R. T. (2021). Biological systematics: principles and applications. Cornell University Press. 3. Minelli, A. (2012). Biological systematics: the state of the art. London, UK: Chapman & Hall 4. Aldhebiani, A. Y. (2018). Species concept and speciation. Saudi journal of biological sciences, 25(3), 437-440. 5. De Queiroz, K. (2005). Ernst Mayr and the modern concept of species. Proceedings of the National Academy of Sciences, 102(suppl 1), 6600-6607. 6. Cox, C. B., Moore, P. D., & Ladle, R. J. (2016). Biogeography: an ecological and evolutionary approach. John Wiley & Sons.

	7. Hall, R. (1998). The plate tectonics of Cenozoic SE Asia and the distribution of land and sea. Biogeography and geological evolution of SE Asia, 99-131.