UNIVERSITAS NEGERI YOGYAKARTA
FACULTY OF MATHEMATICS AND SCIENCE
DEPARTMENT OF BIOLOGY EDUCATION
Colombo 1 Street Yogyakarta 55281
Phone: (0274)565411 Ext. 217, (0274)565411(Administration Office),fax (0274)548203
Website: fmipa.uny.ac.id, E-mail :humas_fmipa@uny.ac.id

Bachelor of Science in Biology **MODULE HANDBOOK**

Module name:	Laboratory Work in Animal Biosystematics
Module level, if applicable:	Undergraduate
Code:	BIM 6161
Sub-heading, if applicable:	-
Classes, if applicable:	-
Semester:	Even
Module coordinator:	Rizka Apriani Putri, M.Sc
Lecturer(s):	Rizka Apriani Putri, M.Sc
Language:	Bahasa Indonesia
Classification within the curriculum:	Elective Course
Teaching format / class hours per week during the semester:	100 minutes lab work, 120 minutes structured activities, and 120 minutes individual study per week
Workload:	Total workload is 91 hours per semester which consists of 100 minutes lab work, 120 minutes structured activities, and 120 minutes individual study per week for 16 weeks.
Credit points:	1SKS (1 ECTS)
Prerequisites course(s):	Invertebrate Biology, Lab. Work in Invertebrate Biology, Vertebrate Biology, Lab Work in Vertebrate Biology
Program Learning Outcomes	PLO 4. Comprehensively mastering Biology (core biology) to solve problems in the field of Biology (problem-solving) and to underlie the concepts of related sciences PLO 5. Mastering the techniques and methodologies in Biology as well as familiar with the equipment used in Biology laboratories in order to get the knowledge of Biology (how we

<table>
<tr><td></td><td>know what we know)
PLO 6. Being adaptive, creative, innovative in applying the concepts of Biology and other related fields
PLO 7. Being skillful in applying the techniques used in laboratories and daily life
PLO 9. Being able to work and create jobs/being an entrepreneur in the field of Biology
PLO 10. Having managerial ability to supervise and evaluate workers and optimizing the networks in order to develop professionalism
PLO 11. Possessing scientific skills to support the ability to speak in local, national, and international forums</td></tr>
<tr><td>Course Outcomes</td><td>After taking this course, the students have ability to:
CO 1. Understand the technical terms used in animal biosystematics and taxonomy
CO 2. Explain type of characters that can be used in systematical analysis in invertebrates and vertebrates
CO 3. Demonstrate ability to choose appropriate OTUs for Systematics analysis
CO 4. Master the numeric phenetics analysis and be able to make phenetics tree using UPGMA analysis
CO 5. Demonstrate the use of Bioinformatics in Animal biosystematics
CO 6. Publish analyzed data in form of papers, reports, posters</td></tr>
<tr><td>Content:</td><td>This course provides practical application in Animal Biosystematics including : commonly used technical terms in animal biosystematics, OTUs sampling in invertebrates and vertebrates , Numeric Phenetic analysis using UPGMA, standard Bioinformatics procedure using BLAST</td></tr>
<tr><td>Study / exam achievements:</td><td>The final mark will be weight as follow:
<table><tr><th>No</th><th>CO</th><th>Assessment Object</th><th>Assessment Technique</th><th>Weight</th></tr><tr><td>1</td><td>CO1 to CO6</td><td>Observed attitudes , knolwedge, and</td><td>Survey, test, rubrics and manuals</td><td>60%</td></tr></table></td></tr>
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			skills		
	2	Review session			40%
				Total	100%
Forms of media:	Real objects, model and simulation, multimedia				
Reference:	A. Simpson, G.G. 1961, Principles of Animal Taxonomy, Oxford Book Company, New Delhi B. Richards, R.E., 2016, Biological Classification, A Philosophical Introduction, Cambridge University Press, UK C. J.E Winston, 1999, Describing Species : Practical Taxonomic Procedure for Biologist, Columbia University Press, New York D. Hickman, C. P. *et al.* ,2017, Integrative Principles of Zoology 17th Ed, McGraw Hill Education, New York E. Wiens, J.J. (ed), 2000, Phylogenetic Analysis of Morphological Data, Smithsonian Institution				

PLO and CO mapping

	PLO1	PLO2	PLO3	PLO4	PLO5	PLO6	PLO7	PLO8	PLO9	PLO10	PLO11
CO1				✓		✓	✓				✓
CO2				✓	✓	✓	✓				✓
CO3				✓	✓	✓	✓			✓	✓
CO4				✓	✓	✓	✓		✓		✓
CO5				✓	✓	✓	✓		✓		✓
CO 6				✓	✓	✓	✓		✓	✓	✓