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 Invertebrate Biology*)
Module level,if applicable:	Undergraduate
Code:	BIM6108
Sub-heading,if applicable:	-
Classes,if applicable:	-
Semester:	Odd
Module coordinator:	Triatmanto, M.Si
Lecturer(s):	
Language:	Bahasa Indonesia
Classification within the curriculum:	Compulsory Course
Teaching format / class hours per week during the semester:	100 minutes lectures, 120 minutes structured activities, and 120 minutes individual studyper week
Workload:	Total workload is 91 hours per semester which consists of 100 minutes lectures, 120 minutes structured activities, and 120 minutes individual study per week for 16 weeks.
Creditpoints:	1 SKS (3 ECTS)
Prerequisites course(s):	--
Perogram Learning Outcomes:	4. Comprehensively mastering Biology (core biology) to solve problems in the field of Biology (problem-solving) and to underlie the concepts of related sciences 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 know what we know) 6. Being adaptive, creative, innovative in applying the concepts of Biology and other related fields 7. Being skillful in applying the techniques used in laboratories and daily life 9. Being able to work and create jobs/being an entrepreneur in the field of Biology 10. Having managerial ability to supervise and evaluate workers and optimizing the networks in order to develop professionalism

<table>
<tr><td></td><td>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:
CO1. Identify the themes and objetsin Invertebrate biology
CO2. Collecting, culturing, and observing free-living Protozoa
CO3. Find, observe, and describe parasitic and commensal Protozoa
CO4. Identify and communicate the characteristics of Porifera, Coelenterata and Echinoderms base on observations the objects.
CO5. Identify and communicate the ecology, body structure, life cycle of Platyhelminthes, Nemathelminthes and Annelida and itsrole for human life
CO6. Observe and communicate the diversity of bodily structures, and the ecology of the Mollusk
CO7. Explain the diversity of body structure, and ecology of arthropods and their role for humans
CO8. Organize invertebrate biology field studies
CO9. Conduct invertebrate biology field studies
CO10. Organize, analyze data, and communicate it in academic reports and presentations</td></tr>
<tr><td>Content:</td><td>This course mainly develops scientific abilities and skills so that the lab work emphasizes the skills of students in finding, observing, identifying, and comparing the diversity of invertebrate animals, including in ecological diversity and life habits.</td></tr>
<tr><td>Study/examachievements:</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>1 to 10</td><td>Attitudes , knolwedge, and skills</td><td>Survey, test, portofolio</td><td>80%</td></tr>
<tr><td>2</td><td>8; 9; 10</td><td>Scientific skills</td><td>Observe rubrics and manuals. portofolio</td><td>20%</td></tr>
<tr><td colspan="4">Total</td><td>100%</td></tr>
</table></td></tr>
<tr><td>Forms of media:</td><td>Real objects, model, multimedia</td></tr>
<tr><td>Reference:</td><td>A. Compulsory books
1. Barnes, 2000. Invertebrate Zoology. Japan: Toppan Company, Ltd.
2. Suhardi, 1988. Media Pendidikan Biologi Avertebrata. P2LPTK Dirjendikti, Depdikbud, Jakarta.
3. Suhardi, 1983. Evolusi Avertebrata. U-I Press, Jakarta.

B. Recomended books
1. Kotpal et al, 1981. Modern Texbook of Zoollogy</td></tr>
</table>

	Invertebrates. Meerut: Rastogi Publication. 2. Hickman, Jr, Cleveland P, 1986. *Biology of Animals*. Times Mirror/Mosby College Publhising st. Louis. 3. Storer, TU & Usinger, 2001. *General Zoologi*. McGraw-Hill, Inc., New York 4. Pechenick, A.Jan., 1998. *Biology of The Invertebrates*. Prindle, Weber & Schmidt, Boston

PLO and CO mapping

	PLO1	PLO2	PLO3	PLO4	PLO5	PLO6	PLO7	PLO8	PLO9	PLO10	PLO11
CO1				✓	✓		✓				
CO2				✓	✓		✓				
CO3				✓	✓		✓				
CO4				✓	✓		✓				
CO5				✓	✓		✓				
CO6				✓	✓		✓				
CO7				✓		✓	✓				✓
CO8				✓		✓	✓		✓	✓	✓
CO9				✓	✓	✓	✓		✓	✓	✓
CO10				✓		✓			✓		✓