UNIVERSITAS NEGERI YOGYAKARTA

FACULTY OF MATHEMATICS AND NATURAL SCIENCES
DEPARTMENT OF MATHEMATICS 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 Education in Biology **MODULE HANDBOOK**

Module name:	Microbe Diversity
Module level,ifapplicable:	Undergraduate
Code:	BIP6216
Sub-heading,ifapplicable:	-
Classes,ifapplicable:	-
Semester:	Odd
Module coordinator:	Dr. Bernadetta Octavia, M.Si
Lecturer(s):	Dr. Bernadetta Octavia, M.Si., Anna Rakhmawati,M.Si
Language:	Bahasa Indonesia
Classification within the curriculum:	Elective course
Teaching format / class hoursperweekduring 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 minuteslectures, 120 minutes structured activities, and 120 minutes individual study per weekfor 16 weeks.
Creditpoints:	2 SKS (3 ECTS)
Prerequisites course(s):	Biochemistry, Cell and Mollecular Biology
Program Learning Outcomes:	PLO 4. Mastering basic Biology and other relevant knowledge with mathematics and natural sciences
Course Outcomes	After taking this course, the students are: CO1. Able to explain the scientific concept of microbial diversity and its benefits for human life CO2. Able to explain the diversity of microorganisms and their relationship with the process of evolution CO3. Able to describe the relationship between cell structure and function in each member of a group of microorganisms CO4. Able to explain the development of microorganism classifications and evaluate differences between microorganism classification systems CO.5 Able to explain the nutritional needs of microorganisms and

<table>
<tr><td></td><td>their importance in controlling growth
CO6. Able to describe the diversity of microorganism metabolism and its implications for the environment
CO7. Able to explain the basic concepts of microbial genetics
CO8. Able to explain the concept of microbial growth and how to control it.
CO9. Able to explain the role of microorganisms in human life
CO.10 Able to plan experiments based on the understanding gained in this lecture</td></tr>
<tr><td>Content:</td><td>In this course, students study about the structure of microbial diversity, the group of microorganisms, their evolutionary history, and their main characteristics, cell structure of microorganisms and viruses, classification, nutrition, metabolism, microbial genetics and growth and the role of microorganisms in human life.</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>CO1 to CO10</td><td>Tes formatif, performance, tes sumatif, sikap</td><td>Survey, test, rubrics and manuals</td><td>100%</td></tr>
<tr><td colspan="4">Total</td><td>100%</td></tr>
</table></td></tr>
<tr><td>Formsof media:</td><td>Real objects, model, multimedia</td></tr>
<tr><td>Reference:</td><td>A. Atlas, R.M., Brown,A.E., Debra,K.W., and Miller,L. 1984. Experimental Microbiology:Fundamental and Application. MacMillan Publishing Company.New York
B. Benson,H,J. 1998. Microbiological Applications: Laboratory Manual in General Microbiology, 7th edition,WCB McGraw-Hill,Boston USA
C. Cappucino, J.E and Sherman, N.1987. Microbiology, A : Laboratory Manual. The Benjamin Cummings Publishing Company,Inc, California,USA
D. Claus, G.W. 1989. Understanding Microbes, A : Laboratory Textbook for Microbioloy,W.H. Freeman and Company,USA
E. Collins,C.H, Lyne,P.M., and Grange,J.M.1979. Microbiological Methods,6th edition,Butterworths,London
F. Febrianti,N.,Prijambada,I.D., Sembiring, L, dan Widianto, D. 2003. Karakterisasi dan Identifikasi Isolat Bakteri Pendegradasi Fraksi Aspaltik Hidrokarbon Lumpur Minyak Bumi, Biologi, 3 (2)
G. Hudson,B.K. and Sherwood, L. 1997. Explorations in</td></tr>
</table>

	Microbiology, a discovery-Based Approach, Prentice Hall, Upper Saddle River, New Jersey, USA

PLO and CO mapping

	PLO1	PLO2	PLO3	PLO4	PLO5	PLO6	PLO7	PLO8	PLO9	PLO10	PLO11	PLO12
CO1				√								
CO2				√								
CO3				√								
CO4				√								
CO5				√								
CO6				√								
CO7				√								
CO8				√								
CO9				√								
CO10				√								