Module X: General Microbiology

1.1. Module Objectives

On completion of this module, the students will:

- Describe basic knowledge of microbiology including evolution, cell structure & function, metabolic pathway, information flow & genetics, microbial system and impact of microorganism
- Work skillfully with microorganisms and observe the different types of microorganisms based on their morphological structure
- Describe the importance and role of microorganisms in human life

1.2. Module Data

Person in charge	Prof. Dr. Pingkan Aditiawati
Total Credits	4
	BM2101 General Microbiology
Modul Examination	Written Test

1.2.1. Sub-module I: General Microbiology

Course Name:	General Microbiology
Course Level:	Undergraduate
Abbreviation, if applicable:	BM2101
Sub-heading, if applicable:	
Course included in the module, if applicable:	
Semester/term:	3
Course coordinator(s):	Prof. Dr. Pingkan Aditiawati
Lecturer(s):	to be determined in each semester
Semester	3
Language:	Bahasa Indonesia
Classification within the curriculum:	General Studies / Compulsory Course/ Elective Course
Teaching format / class hours per week during the semester:	3 hours lectures and 3 hours laboratory
Workload:	3 hours lectures, 3 hours laboratory, 3 hours structured activities, 3 hours individual study, 16 weeks per semester, and total 192 hours a semester
Credit Points:	4
Course Target / Outcome	After completion of this course students are expected to be able to: A. <u>Conceptual Knowledge and Competence:</u> - Describe basic cell structure and its function. - Define the evolution of prokaryotic cells, its diversity. - Describe the essential concepts of microbial metabolisms and its metabolic diversity.

	- Define the growth of bacteria. - Describe the genetic information flow in prokaryotes. - Define the mutation and horizontal gene transfer and its effect to diversity of microorganisms. - Define the general characteristics of viruses related to their unique structures and genomes. - Describe the method for controling microbial growth - Define the applications of microbiology in several fields B. <u>Laboratory Skills:</u> - Apply microbiological laboratory methods and proper use of equipment - Apply safety approaches using appropriate protective and emergency procedures. C. <u>Scientific Skills:</u> - Identify the relationship between science and society. D. <u>Social Skills:</u> - Demostrate working and communication attitute effectively in team
Teaching methods	Interactive Teaching
Contents (SAP)	– Introduction : History of Microbiology – Basic Usage of Microsope – Characterictics of Microorganisms – Concept of Microbial Metabolism – Nutrition and Cultivation of Microorganisms and Genetics of Microorganisms – Taxonomy of Microorganisms – Virus – Mid-Term Test – Eukaryotic and Pathogenic Microorganisms – Control of Microorganisms – Antimicrobial Therapy – Medical Microbiology – Medical Microbiology – Environmental Microbiology – Industrial Microbiology
Literature / Sources	1. Black, J. 2017. Microbiology: Principles and Applications, 11th ed. John Wiley.. 2. Madigan, M. T., J. M. Martinko & J. Parker, 2017. Brock Biology of Microorganisms, 15th

	Ed. Pearson Prentice Hall International, Inc., New Jersey 3. Cappuccino, James G. dan Sherman, Natalie. 2014. Microbiology: A Laboratory Manual, 10th Edition. Pearson Education.