

Module XX: Research Methodology

1.1. Module Objectives

On completion of this module, the students will be able to:

- develop their collaboration and communication skills
- generate research ideas in the field of microbiology by incorporating several sources of information
- propose a hypothesis from the research idea
- design a research plan to test the hypothesis proposed

1.2. Module Data

Person in charge	Dr. Gede Suantika
Credits	4
Course	BI4002 Scientific Communication
	BM3001 Research Methodology
Course Examination	Research Document Progress Report and research performance evaluation

1.2.1. Sub-module I: Research Methodology

Lecturer	Dr. Maelita R. Moeis and Mustika Dewi, M.Si
Semester	6
Type of submodule / course	Cumpulsory Course
Credits	2
Workload – Class Lecture	2 hours lectures, 2 hours structured activities, 2 hours individual study, 16 weeks per semester, and total 96 hours a semester
Workload Detail	Paper reading assignment, presentation
Classification within the curriculum:	General Studies / Compulsory Course / Elective Course
Type of assessment/examination	Draft of research proposal Presentation
Language	Bahasa Indonesia
Course Target / Outcome	Students will be able to interpret scientific thinking in order to explore reasearch idea, write down the research idea on the form of research proposal and able to presebr it properly
Teaching methods	Interactive teaching
Contents (weekly)	

1	Introduction
2	Science and Scientific Method I
3	Reasoning 1: Logical and creative thinking
4	Thesis anatomy and plagiarism
5	Research proposal: Background
6	Research proposal: Problems identification
7	Research proposal: mind maps and hypothesis
8	SITH research group presentation: Current research
9	Mid-Term Test
10	Experiment design of single variable: Completely randomized design
11	Experiment design of single variable: randomized block design
12	Experiment design of single variable: latin square design
13	Factorial experiment design
14	Mean comparison I
15	Mean comparison I
16	Final Test
Literature / Sources	<ul style="list-style-type: none"> • Gomez, K.A. and Gomez, A.A.,1984, Statistical Procedures for Agricultural research, John Wiley & Sons • Blank, L., 1982, Statistical procedures for engineering, management and science, McGraw Hill International Book Company • Natrella, M.G., 1966, Experimental statistics, John Willey & Sons
Other specialties	

1.2.2. Sub-module II: Scientific Communication

Lecturer	Dr.Sri Harjati Suhardi and Mamat Kandar, M.P.
Semester	6
Type of submodule / course	Cumpulsory Course
Credits	2
Workload – Class Lecture	2 hours lectures, 2 hours structured activities, 2 hours individual study, 16 weeks per semester, and total 96 hours a semester
Workload Detail	Paper reading assignment, presentation
Classification within the curriculum:	General Studies / Compulsory Course / Elective Course
Type of assessment/examination	Written Test : Midterm exam, Final exam, Quizess, Assignments Presentation

Language	Bahasa Indonesia
Course Target / Outcome	<p>Knowledge</p> <ul style="list-style-type: none"> Students will be able to composed reseach proposal and define methods in scientific thinking <p>Skill</p> <p>Students will be able to:</p> <ul style="list-style-type: none"> Perform oral and poster scientific presentation perform in group discussion perform scientific and critical thinking evaluate other scientific presentation
Teaching methods	Interactive teaching
Contents (weekly)	
	1 Scientific data visualization
	2 Quantitative communication
	3 The usage of multimedia
	4 Speaking technique
	5 Writing Technique
	6 Common problems in writing
	7 Practice of scientific writing
	8 Mid-Term Test
	9 Popular scientific writing
	10 Scientific poster
	11 Scientific presentation and oral communication
	12
	13 Material preparation parcatices: article or presentation, and oral presentation
	14
	15
	16 Final Test
Literature / Sources	<ul style="list-style-type: none"> Lutz and Storms, The Practice of Technical and Scientific Communication, ABLEX Publishing, 1998. Fearing, and Sparrow, Technical Writing: Theory and Practice, Modern Language Association of America, 1989. David Lindsay, Scientific Writing = Thinking in Words, CSIRO Publishing, 2011.
Other specialties	