Module IX: Statistic

1.1. Module Objectives

On completion of this module, the students will:

- Understand basic methods for experiment design, data analysis, and presenting data in summary form in microbiological research;
- Able to assess a situation involving state the nature of the biological question and the null and alternative hypotheses proposed, decide on the correct statistical procedure to test the null hypothesis and assumptions of the test used, calculate the statistic, assess its statistical significance, and interpret the data in light of calculated result

1.2. Module Data

Person in charge	Faculty of Natural Science and Mathematics
Total Credits	3
Course	MA2082 Biostatistic
Modul Examination	Written Test

1.2.1. Sub-module I: Statistic for Microbiology

Course Name:	Biostatistic
Course Level:	Undergraduate
Abbreviation, if applicable:	MA2082
Sub-heading, if applicable:	
Course included in the module, if applicable:	
Semester/term:	3
Course coordinator(s):	Dr. Utriweni Mukhaiyar
Lecturer(s):	to be determined in each semester
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
Workload:	3 hours lectures, 3 hours structured activities, 3 hours individual study, 16 weeks per semester, and total 144 hours a semester
Credit Points:	3
Requirements:	
Learning goals/competencies:	The students will have the ability to : – Define and describe the basic methods statistic in microbiological research – Apply statistical methods to interpret data of microbiology research
Content:	Introduction Basic Statistic Data Distribution Esperimental Design

	Writing test I (Case Study) Testing difference between two groups I Testing difference between two groups II Chi-square contingency tables Writing test II (Case Study) Hypothesis test (single factor) Writing test III (Case Study) Hypothesis test (two factors) I Hypothesis test (two factors) II Hypothesis test (multi factorial) I Hypothesis test (multi factorial) II Final Test
Study/exam achievements:	Students are considered to be competent and pass if at least get 50% of maximum mark of the exams, homework, and research based learning.
Forms of Media:	Interactive Teaching
Literature:	1. Black, J. 2007. Microbiology: Principles and Applications, 7th ed. John Wiley. 2. Madigan, M. T., J. M. Martinko & J. Parker, 2006. Brock Biology of Microorganisms, 11th ed. Pearson Prentice Hall International, Inc., New Jersey 3. Pelczar, M. J. E. C. S. Chan & N. R. Krieg, 1993, Microbiology concept and application, McGraw Hill, Inc., Toronto
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