

Module Description: Biostatistic (21R01210502)

Module designation	Course Module
Semester(s) in which the module is taught	I
Person responsible for the module	1. Dr. Suni Hariati, S.Kep., Ns., M.Kep. 2. Rini Rachmawaty, S.Kep, Ns, MN, Ph.D 3. Syahrul, S.Kep, Ns, M.Kes, Ph.D 4. Saldy Yusuf, S.Kep, Ns, MHS, Ph.D
Language	Bilingual, Bahasa Indonesia and English
Relation to Curriculum	This course is a compulsory course and offered in the 1 th semester.
Teaching Methods	Teaching methods used in this course are: - Lecture (i.e., Lecturer, Problem Based Learning, Focus Group Discussion,, case study) - Group Investigation - Demonstration The class size for lecture is approximately 30 students each class, While for problem based learning is about 5-6 students each group for each lecturer
Workload (incl. contact hours, self-study hours)	Contact hours for lecture is 26.6 hours, assignments are 32 hours, independent study are 32 hours, For this course, students are required to meet a minimum of 90.67 hours in one semester, which consist of: - 26.6 hours (equals with ECTS) for lecture - 32 hours for structured assignments, - 32 hours for self-study hours,
Credit points	2 credit points (equivalent with 3.02 ECTS)
Required and recommended prerequisites for joining the module	No Requirement for this course
Module objectives/intended learning outcomes	This course is a mandatory course that focuses on achieving competence in the use of statistics in research, including topics such as Introduction to Statistics, Descriptive Statistics, Inferential Statistics, Bivariate and Multivariate Data Analysis, and Interpretation of data analysis results. Knowledge CLO 1: Comparing the basic concepts of statistics, descriptive statistics, and inferential statistics CLO-3: : Capable of understanding general linear model CLO-4: Capable and interpreting the data analysis

	Skill 1 CLO 2: Demonstrating the stages of bivariate and multivariate data analysis
Content	Students will learn about: 1. Concepts of Descriptive Statistics and Inferential Statistics, Data Normality, and Probability Distribution. 2. Hypothesis Testing Concepts and Concepts of Types of Errors, Power, and Sample Size. 3. Parametric and Non-Parametric Analysis, and Interpretation of Numerical Comparative Test Results. 4. Correlation Testing: Analysis and Interpretation of Results. 5. Parametric and Non-Parametric Analysis, and Interpretation of Categorical Comparative Test Results. 6. Testing the Validity and Reliability of Research Instruments. 7. Concepts, Analysis, and Interpretation of Multivariate Tests. 8. Introduction to General Linear Model Tests: Independent MANOVA, Repeated MANOVA, SEM - PLS.
Examination forms	Written exam: Multiple Choice Questions using Vignettes.
Study and examination requirements	- Students must attend 15 minutes before the class starts. - Students must inform the lecturer if they will not attend the class due to sickness, etc. - Students must submit all class assignments before the deadline. - Students must attend all classes of clinical skill laboratories. - Students must attend the exam to get final grade. - Students must get final mark minimum of 40
Reading list	1. Dahlan, S. (2014) Statistik untuk Kedokteran dan Kesehatan. Jakarta: Epidemiologi Indonesia 2. Pallant, J. (2011). <i>SPSS Survival Manual</i> (4th ed.). New South Wales: Allen & Unwin. 3. Burns, N., Grove, S. K. (2001). <i>The practice of nursing research: conduct, critique, & utilization</i> (4th ed.). W.B. Saunders Company. 4. Vittinghoff, E., Glidden, D. V., Shiboski, S. C., & McCulloch, C. E. (2012). <i>Regression methods in biostatistics: Linear, logistic, survival, and repeated measures models</i> (2nd ed.). Springer.
Cluster of Competence	Scientific Method
Form of Assessments	- Midterm examination (20%) - Final exam (20%) - Project based learning (60%)
Date of last amendment made	March 2025

Course Learning Outcome Assessment of Learning Outcomes for Course Modules

Course Module Name	: Biostatistic
Code	: 21R01210502
Semester	: I
Person responsible for the module	: Dr. Suni Hariati, S.Kep., Ns., M.Kep
Lecturers	: 1. Rini Rachmawaty, S.Kep, Ns, MN, Ph.D
	2. Syahrul, S.Kep, Ns, M.Kes, Ph.D
	3. Saldy Yusuf, S.Kep, Ns, MHS, Ph.D

Week/ Meetin g	Intended Learning Outcomes	Course Learning Objectives	Performance Indicator	Topic	Learnin g Method	List of Assessments	List of Rubric
1	Knowledge (K)	CLO 1: Comparing the basic concepts of statistics, descriptive statistics, and inferential statistics	• The accuracy of students in understand of basic concept of statistics, descriptive statistics, and inferential statistics • Active participation in discussions in presentation of the result assignment • Accuracy of in completing assigned tasks	1. Concepts of Descriptive Statistics and Inferential Statistics, Data Normality, and Probability Distribution. 2. Hypothesis Testing Concepts and Concepts of Types of Errors, Power, and Sample Size.	Lecturer Case Method	Written exam: Multiple Choice Questions using Vignettes of topic Assignment 1: Analysis and Interpretation of Descriptif statistic Assignment 2: Hypothesis Testing	Rubric for Multiple Choice Questions Assessment Rubric for Term Paper Assignment Presentation rubric
15		CLO-3: : Capable of understanding	The accuracy of students in	Introduction to General Linear Model Tests: Independent MANOVA,	Lecturer	Written exam: Multiple Choice	Rubric for Multiple Choice Questions

Week/ Meeting	Intended Learning Outcomes	Course Learning Objectives	Performance Indicator	Topic	Learning Methods	List of Assessments	List of Rubrics
		general linear model	understand of general linear model	Repeated MANOVA, SEM - PLS.		Questions using Vignettes of topic	
14		CLO-4: Capable and interpreting the data analysis	Capable and interpreting the data analysis	1. Interpreting of Parametric and Non-Parametric Analysis Categorical Comparative Test Results. 2. Interpreting of Parametric and Non-Parametric Analysis, Correlation Testing: Analysis and Interpretation of Results. 3. Interpreting of Parametric and Non-Parametric Analysis Categorical Comparative Test Results. 4. Interpreting of the Validity and Reliability of Research Instruments.	Lecturer	Written exam: Multiple Choice Questions using Vignettes of topic	Rubric for Multiple Choice Questions

Week/ Meeting	Intended Learning Outcomes	Course Learning Objectives	Performance Indicator	Topic	Learning Methods	List of Assessments	List of Rubrics
				5. Interpretation of Multivariate Tests.			
2 - 13	SKILL	CLO 2: Demonstrating the stages of bivariate and multivariate data analysis	Capable to Demonstrating the stages of bivariate and multivariate data analysis	- Practice Analysis of Numerical Comparative Test - Practice Analysis of Correlation Analysis - Practice Analysis of of Categorical Comparative Test - Practice Analysis of n of Validity and reliability test - Practice Analysis of of Multivariate test	Case method Project based lecturer	Assignment 3: Analysis and Interpretation of Numerical Comparative Test Assignment 4: Correlation Analysis Assignment 5: Analysis and Interpretation of Categorical Comparative Test Assignment 6: Analysis and Interpretation of Validity and reliability test Assignment 7: Analysis and Interpretation of Multivariate test	Assessment Rubric for Term Paper Assignment Presentation rubric

Proportion of assessment aspects according to the course learning outcomes.

ILO	CLO	Learning Method	Bentuk Asesmen			Proportion
			Participatory Analysis	Project based learning	Final test	
Knowledge 1	CLO 1	Lectures, discussions, case method	Assignment 1: Analysis and Interpretation of Descriptif statistic (10%) Assignment 2: Hypothesis Testing (10%)		Final test: MCQ 5%	5%
	CLO 3	Lectures, discussions, case method			Final test: MCQ 5%	
	CLO 4	Lectures, discussions, case method			Final test: MCQ 5%	
Competence 1	CLO 2	Case method Project based	Assignment 3: Analysis and Interpretation of Numerical Comparative Test (10%) Assignment 4: Correlation Analysis(10%) Assignment 5: Analysis and Interpretation of Categorical Comparative Test (10%) Assignment 6: Analysis and Interpretation of Validity and reliability test (10%) Assignment 7: Analysis and Interpretation of Multivariate test (10%)		MCQ 15%	5%

TOTAL	70%		30%	100%
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Example of Written Test Exam

1. Nurse Ali evaluates family support during 2 observations (pre and post-test). Family support data is ordinal (important-not important-very important). Therefore, the appropriate statistical test to use for the paired data is(CLO1)
 - A. Chi-Square
 - B. Fisher
 - C. McNemar
 - D. Marginal Homogeneity
 - E. Cochran's Q

2. A researcher conducted a Content Validity data analysis to calculate CVR. The panelists used in the data analysis were 16 panelists. What is the minimum CVR value that serves as the decision standard? (CLO 1)
 - a. 0.8
 - b. 0.62
 - c. 0.51
 - d. 0.49
 - e. 0.42

3. A researcher conducted an analysis on the validity test of their questionnaire. The questionnaire consists of 10 questions and was tested on 30 respondents. Consider the following Pearson correlation analysis results. Which question items are valid based on the Pearson correlation values? (CLO 2)
 - a. Items 1,2,3,4,5,6,7,8,9,10
 - b. Items 2,3,4,5,6,7,8,9,10
 - c. Items 2,3,4,5,7,8,9,10

d. Items 1,2,3,4,5,7,8,9,10

e. Items 3,4,5,7,8,9