



Universitas Brawijaya
Faculty of Mathematics and Natural Sciences
Department of Statistics / Bachelor Statistics Study Programme

Module Handbook

Module Name:	Statistical Method I (MAS61121)	
Module Level:	Bachelor	
Abbreviation, if applicable:	-	
Sub-heading, if applicable:	-	
Courses included in the module, if applicable:	-	
Semester/term:	1st / First Year	
Module Coordinator(s):	Dr. Dra. Ani Budi Astuti, M.Si	
Lecturer(s):	Prof. Dr. Ir. Henny Pramoedyo, M.S.	
	Dr. Ir. M. Bernadetha Mitakda	
	Dr. Dra. Ani Budi Astuti, M.Si	
Language:	Indonesian	
Classification within the curriculum:	Compulsory course	
Teaching format / class per week during semester:	2 × 50 minutes + 100 minutes laboratory session	
Workload:	1.67 hours lectures, 2 hours structural activities, 2 hours individual studies for 16 weeks + 1.67 hours laboratory session, 2 hours structural activities, 2 hours individual studies for 8 weeks and total 136 hours per semester 4.50 ECTS	
Credit Points:	3	
Requirements:	-	
Learning goals / competencies:	General Competence (Knowledge):	
	ILO1	The students are able to master basic scientific concepts and statistical analysis methods applied on computing, social science, humanities, economics, industry and life science.
	ILO3	The students are able to manage, analyze, and complete the real case using statistical method on computing, social humanities, economics, industry and life science that helped by software, then present and communicate the results.
	ILO5	The students are able to apply logical, critical, systematic, and innovative thinking independently when applied to science and technology that contain humanities values, based on scientific principles, procedures and ethics with excellent and measurable results.

	ILO6	The students are able to take appropriate decisions to solve the problems expertly, based on the information and data analysis.
	ILO8	The students are able to apply and internalize the spirit of independence, struggle, entrepreneurship, based on values, norms, and academic ethics of Pancasila in all aspects of life.
	Specific Competence:	
	M1	Students are able to understand and apply the basics of statistics, basic concepts of mathematical modeling and statistical modeling, statistics, inductive statistics, variables, populations and samples, parameters and statistics, data and concepts of data driven (ILO1 and ILO5)
	M2	Students are able to understand, solve and compile data, and can apply it to real problems, so they can draw conclusions from a group of data (ILO1, ILO3, ILO5, ILO6, and ILO8)
	M3	Students are able to understand, know and apply the functions and uses of descriptive statistics, data centralization, and data distribution (ILO1, ILO3, ILO5, ILO6, and ILO8)
	M4	Students are able to understand the concept of random variable theory and probabilities and their use in sampling distribution and introduction to sampling techniques (ILO1, ILO3, ILO5, ILO6, and ILO8)
	M5	Students are able to understand and apply the measure of central tendency or the measure of data distribution approached based on the function of probability (ILO1, ILO3, ILO5, ILO6, and ILO8)
	M6	Students are able to understand and apply the concepts of discrete distribution and continuous distribution (ILO1, ILO3, ILO5, ILO6, and ILO8)
	M7	Students are able to understand and apply the concept of the theory of parameter estimation in a point and interval for mean and variance of a population (ILO1, ILO3, ILO5, ILO6, and ILO8)
Contents:	1	Fundamentals of Statistics and Its Use
	2	Measurement of Central Tendency
	3	Measurement of Data Distribution
	4	Basic Concepts of Random Variable, Probability and Probability Distribution

	5	Permutation and Combination Analysis
	6	Expected Value of a Single Random Variable
	7	Expected Value of Multiple Random Variables
	8	Sampling Distribution and Its Relation to Population and Central Limit Theorem
	9	Introduction to Sampling Techniques: Simple Random Sampling and Non-Simple Random Sampling
	10	Discrete Probability Distribution, Bernoulli Discrete Probability Distribution, and Discrete Binomial Probability Distribution
	11	Discrete Probability Distribution, Poisson Discrete Probability Distribution, and Hypergeometric Discrete Probability Distribution
	12	Continuous Probability Distribution of Normal, T, Chi-Square and F
	13	Approach to Binomial Discrete Probability Distribution and Poisson Discrete Probability Distribution by the Normal Probability Distribution
	14	Estimation of Point Parameters and Estimation of Interval Parameters for the Mean and Variance of One Population
Soft skill attribute:	Responsible, independently, and discipline	
Study/exam achievement:	<p>Final score (NA) is calculated as follow: 5% Attitude, 20% Laboratory Session, 10% Assignments, 15% Quizzes, 20% Midterm Exam, 30% Final Exam</p> <p>Final index is defined as follow:</p> <p>A : > 80 - 100</p> <p>B+ : > 75 - 80</p> <p>B : > 69 - 75</p> <p>C+ : > 60 - 69</p> <p>C : > 55 - 60</p> <p>D+ : > 50 - 55</p> <p>D : > 44 - 50</p> <p>E : 0 - 44</p>	
Forms of media:	Software (Minitab, SPSS, Genstat), LCD projector, whiteboard	
Learning methods:	Lecture, assessments, and discussion	
Literature:	<p>Main:</p> <p>1. Mendenhall, W., Beaver, R. J. dan Beaver, B. M. 2009. Introduction to Probability and Statistics. 13th Edition, Brooks/Cole, Cengage Learning, Florida</p>	

	2. Suntoyo Yitnosumarto, 1990. Dasar-dasar Statistika. Rajawali pers. Jakarta
	3. Walpole, R. E. 1993. Pengantar Statistika. Edisi 3. PT. Gramedia Pustaka Utama
	Support:
	1. Feller, W., 1983. An introduction to probability theory and its applications, vol I dan II. Wiley Eastern Ltd. New Delhi
	2. Hogg. R. V. Dan Craig, A. T., 1978. Introduction to mathematical statistics, edisi ke 4, John Wiley & Sons. New York
	3. Steel. R. G. D dan Torrie. J. H., 1976. Introduction to statistics. McGraw-Hill Book Co., New York
	4. Snedecor, G. W. Dan Cochran, W. G., 1967. Statistical methods, edisi ke 6. The Iowa State University Press, Ames
Notes:	