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

Module Handbook		
Module Name:	Mathematics (MAS61111)	
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. Umu Sa'adah, M.Si	
Lecturer(s):	Luthfatul Amaliana, S.Si., M.Si	
	Ir. Heni Kusdarwati, MS.	
Language:	Indonesian	
Classification within the curriculum:	Compulsory course	
Teaching format / class per week during semester:	3 × 50 minutes	
Workload:	2.5 hours lectures, 3 hours structural activities, 3 hours individual studies, 16 weeks per semester, and total 136 hours per semester 4.5 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.
	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 master the concepts of functions and types (ILO1, ILO5, ILO6, ILO8).
	M2	Students are able to master the concepts of limits and continuity and their application. (ILO1, ILO5, ILO6, ILO8).
	M3	Students are able to master the concept of derivative and its application (ILO1, ILO5, ILO6, ILO8).
	M4	Students are able to master the integral concepts and their application (ILO1, ILO5, ILO6, ILO8).
	M5	Students are able to explain, identify, and solve derivative and integral problems in transcendent functions (ILO1, ILO5, ILO6, ILO8).
Contents:	1	Functions and Function Charts
	2	Limits and Continuity of Functions
	3	Definition of derivatives, derivative rules, chain rules, high-level derivatives, implicit function derivatives.
	4	Application of Derivatives in Drawing Graphics
	5	Anti-derivative, Definite Integral, Calculus Basic Theorem, Integration Method of Variable Substitution
	6	Integral Application in Mathematics and Statistics
	7	Transcendent functions, their derivatives and integrals.
Soft skill attribute:	Responsible, independently, and discipline	
Study/exam achievement:	Final score (NA) is calculated as follow: 15% Assignments, 20% Quizzes, 25% Midterm Exam, 25% Final Exam, 10% Tutorial Class, 5% Attitude Final index is defined as follow: A : > 80 - 100 B+ : > 75 - 80 B : > 69 - 75 C+ : > 60 - 69 C : > 55 - 60 D+ : > 50 - 55 D : > 44 - 50 E : 0 - 44	
Forms of media:	Laptop, LCD projector, whiteboard	
Learning methods:	Lecture, assessments, and discussion	
Literature:	Main:	
	1. Varberg, D., Purcell E.J. and Rigdon, S. 2007. Calculus, 9th Ed. Prentice Hall and Inc. New Jersey.	

	2. Varberg, D., Purcell E.J. and Rigdon, S. 2011. Calculus, 9th Ed (terjemahan jilid 1 dan 2). Alih Bahasa: Susila, I. N. Penerbit Erlangga.
	Support:
	1. Wrede, R. & Spiegel, M.R., 2002. Advanced Calculus, (2nd Edition, 2007), Erlangga.
	2. Baisoeni, M.H. 1986. Kalkulus. UI Press.
Notes:	