



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

Module Handbook

Module Name:	Introduction to Regression Analysis (MAS62122)	
Module Level:	Bachelor	
Abbreviation, if applicable:	-	
Sub-heading, if applicable:	-	
Courses included in the module, if applicable:	-	
Semester/term:	2nd / First Year	
Module Coordinator(s):	Prof. Ni Wayan Surya Wardhani, Ir.,M.S, Dr.	
Lecturer(s):	Prof. Ni Wayan Surya Wardhani, Ir.,M.S, Dr.	
	Achmad Efendi, S.Si., M.Sc., Ph.D	
Language:	Indonesian	
Classification within the curriculum:	Compulsory course	
Teaching format / class hours per week during semester:	3 hours lectures (50 min per hour lecture)	
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	
Requirements:	Matrix and vector spaces (MAS62113), Statistics Method I (MAS61121)	
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.
	ILO2	The students are able to arrange and/or choose an efficient data collection/ data generated design that applies in surveys, experiments or simulations.
	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.

	ILO4	The students are able to master at least two statistical softwares, including based on open source.
	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.
	ILO7	The students are able to improve and develop a job networks, then supervise and evaluate the team's performance they lead.
	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 understand various problems that can be simplified by regression modeling (ILO3, ILO1, ILO5, ILO7, ILO8).
	M2	Students understand and understand the process of building a regression model (ILO3, ILO4, ILO7, ILO8).
	M3	Students are able to apply regression analysis in various fields and interpret the results (ILO3, ILO1, ILO4, ILO5, ILO7, ILO8).
	M4	Students are able to detect violations of the assumptions that underlie regression analysis (ILO5, ILO3, ILO4, ILO8).
	M5	Students are able to convey the results of their modeling and analysis in writing or verbally, in the form of group reports (ILO3, ILO1, ILO4, ILO5, ILO8)
Contents:	1	Basics principles of regression and correlation and their function to give solution of problems
	2	Parameter estimation and testing of simple regression
	3	The significance of regression trough ANOVA
	4	Forming regression model with more than two predictors using matrix approach
	5	Assumptions of regression analysis
	6	Outlier detection and handling
	7	Multiple regression: parameter estimation and testing and correlation

	8	Choosing the best regression model
Soft skill attribute:	Responsible, independently, and discipline	
Study/exam achievement:	<p>Final score (NA) is calculated as follow: 10% Tutorial Class, 20% Assignments, 45% Quizzes, 25% Midterm 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:	Excel, Genstat, Minitab, LCD Projector, Whiteboard	
Learning methods:	Lecture, assessments, and discussion	
Literature:	Main:	
	1. Montgomery, D.C., 1992. Introduction to Linear Regression Analysis, Willey, New York.	
	Support:	
	1. Myers, R.H. 1990. Classical and Modern Regression with Applications. PWS-KENT, Boston, Massachusetts.	
	2. Draper, N.R. and Smith H., 1998. Applied Regression Analysis 3rd Edition, John Willey, New York.	
3. Chatterjee, S and Simonoff, J. S. 2013. Handbook of Regression Analysis, Willey, New Jersey.		
Notes:		