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

Module Handbook

Module Name:	Sampling and Survey Technique (MAS61124)
Module Level:	Bachelor
Abbreviation, if applicable:	-
Sub-heading, if applicable:	-
Courses included in the module, if applicable:	-
Semester/term:	5th / Third Year
Module Coordinator(s):	Prof. Dr. Ir. Ni Wayan Surya Wardhani, MS.
Lecturer(s):	Nur Silviyah Rahmi, S.Si., M.Stat
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:	Mathematical Statistics I (MAS61114)
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.
	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.
	Specific Competence:	
	M1	Students are able to explain about the sample, population, probability, and some basic concepts related to statistical sampling techniques. (ILO1, ILO5)
	M2	Students are able to explain the advantages and disadvantages of census and sampling, census, quick count and probability sampling and non-probability sampling, explain differences in sampling errors and non-sampling errors. (ILO1, ILO5)
	M3	Students are able to do simple random sampling techniques, estimate the parameters of the average population, total population, and population proportions and determine the sample size to estimate population parameters. (ILO1, ILO2, ILO3, ILO5, ILO8)
	M4	Students are able to do a stratified random sampling of heterogenous population conditions and estimate population parameters and allocate sample sizes. (ILO1, ILO2, ILO3, ILO5, ILO8)
	M5	Students are able to do the ratio estimation and regression estimation for the mean value and total population. (ILO1, ILO3, ILO5, ILO8)
	M6	Students are able to choose an efficient estimation method by utilizing information from other variables that correlate with the variable that they want to estimate parameters (ILO2, ILO5, ILO8)
	M7	Students are able to draw samples from populations that form groups, are able to estimate population parameters and determine sample sizes to estimate population parameters. (ILO1, ILO2, ILO3, ILO5, ILO8)
	M8	Students are able to do a gradual sampling of the population that forms the group, able to estimate the population parameter and determine the size (ILO2, ILO3, ILO5, ILO8)
	M9	Students are able to explain non-probability sampling and its application in conducting surveys and explain sources of bias (ILO1, ILO2, ILO5, ILO8)

	M10	Students are able to convey the results of their analysis in writing or verbally, in the form of individual or group assignments (ILO5, ILO8)
Contents:	1	Definition, the basics of sampling
	2	Simple random sampling
	3	Layered and systematic random sampling
	4	Allocation of layered random sampling
	5	Sample size estimation
	6	Applied different fields
	7	Probability proportional sampling (pps)
	8	Cluster sampling
	9	Ratio estimator and regression estimator
	10	2-step sampling (multistage sampling)
	11	Non-probability sampling
	12	Sources of bias
Soft skill attribute:	Responsible, independently, and discipline	
Study/exam achievement:	Final score (NA) is calculated as follow: 20% Post Test, 20% Presentation, 25% Midterm Exam, 30% Final Exam, 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:	LCD projector, whiteboard	
Learning methods:	Lecture, assessments, and discussion	
Literature:	**Main:**	
	1. Scheaffer, Mendenhall, Ott,1990. Elementary Survey Sampling. 4rd edition. PWS-KENT. Boston	
	2. Levy PS. Lemeshow S. 1999. Sampling of Population, Methods and Application. 3rd edition. John Wiley & Sons New York	
	Support:	
	1. Cochran, W.G. 1977. Sampling Techniques. 3rd edition. J. Wiley & Sons. New York	
Notes:		