Graduate Program in Mathematics

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MODULE HANDBOOK

Module Name	Analisis Runtun Waktu (Time Series Analysis)
Module level, if applicable	Master Program
Code, if applicable	MMS-5411
Subtitle, if applicable	-
Courses, if applicable	-
Semester(s) in which the module is taught	2/first year
Person responsible for the module	Chair of Statistics Laboratory
Lecturer(s)	Prof., Dr.rer.nat., Dedi Rosadi, S.Si., M.Sc.
Language	Bahasa Indonesia
Relation to curriculum	Elective for Master Degree in Mathematics
Teaching methods	3 hours lecture
Workload (incl. contact hours, self-study hours)	3 hours lectures, 6 hours individual study,14 weeks per semester, and total 126 hours per semester
Credit points	3
Required and recommended prerequisites for joining the module	-

Module objectives/intended learning outcomes	On successful completion of this course, ● CO Students should understand the statistical concept related to time series analysis ● CO2 Students can understand the theoretical properties of some stationary univariate models and non-stationary models ● CO3 Students can model the data using time series model, with the help of statistical software, such as R, Eviews, or others
Content	Topics include basic concepts, such as: Stochastic process, the auto covariance and the auto correlation function (ACF), the partial ACF (PACF), strictly and wide-sense stationary, causality and invertibility; Estimating the mean, ACF and PACF; Some stationary models (White noise, Moving Average/MA, Autoregressive/AR, ARMA), Estimation and forecasting stationary models, Diagnostic check methods, some non stationary model: ARIMA, SARIMA, ARIMAX and ARCH/GARCH, Extended models related to the new research, Computation using R
Examination forms	Written exams and final project
Study and examination requirements	The weight of assignments will be as follows: 1. Quiz, home work, presentation 20% 2. Mid semester exam 40% 3. Final exam 40%
Media employed	online platform, Learning management system, LCD projectors, whiteboards.
Reading list	Rosadi, D., 2013, Analisa Runtun Waktu, GAMA PRESS Rosadi, D., 2011, Analisa Ekonometrika dan Runtun Waktu Terapan dengan R, Andi Ofset, Yogyakarta Krispin, R., 2019, Hands-On Time Series Analysis with R, Packt Publishing Brockwell, P.J. dan Davis, R.A., 1996, Introduction to Time Series and Forecasting, Springer Verlag, Berlin

CO-PLO Mapping

	PLO 1	PLO 2	PLO 3	PLO 4	PLO 5	PLO 6	PLO 7
CO 1	x						
CO 2		x					
CO 3			x				

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