UNIVERSITAS NEGERI YOGYAKARTA

FACULTY OF MATHEMATICS AND NATURAL SCIENCES
DEPARTMENT OF MATHEMATICS EDUCATION
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Bachelor of Science in Mathematics **MODULE HANDBOOK**

Module name:	Time Series Analysis
Module level,if applicable:	Undergraduate
Code:	MAT6365
Sub-heading,if applicable:	-
Classes,if applicable:	-
Semester:	6^{th}
Module coordinator:	Dr. Dhoriva Urwatul Wutsqa, M.S.
Lecturer(s):	Dr. Dhoriva Urwatul Wutsqa, M.S.
Language:	Bahasa Indonesia
Classification within the curriculum:	Elective courses
Teaching format/class hours perweek during the semester:	150 minutes lectures and 180 minutes structured activities per week.
Workload:	Total workload is 136 hours per semester which consists of 150 minutes lectures, 180 minutes structured activities, and 180 minutes self-study per week for 16 weeks.
Creditpoints:	3
Prerequisites course(s):	Applied Regression Analysis (MAT6327)
Course outcomes:	CO1: Respect other people's opinions regardless of ethnicity, race, and religion. CO2: Communicate ideas related to concepts, methods, and time series data analysis verbally and in writing CO3: Explain the basic concepts and data analysis methods of time series

<table>
<tr><td></td><td>CO4: Analyze time series data with appropriate analysis methods and conclude the results.
CO5: Use statistical programs especially MINITAB or Matlabto analyze time series data.</td></tr>
<tr><td>Content:</td><td>This course discusses: (1) the basic aspects of forecasting; (2) basic statistical concepts; (3) data patterns of time series, trend, seasonal data, cyclicalseries, and other irregular fluctuations;(4) the concepts of autocorrelation, stationary, and white noise; (5) moving average and smoothing methods; (6) time series decomposition; (7) regression with time series data; (8) ARIMA method (Autoregressive Integrated Moving Average); and(9) neural network model for time series data.</td></tr>
<tr><td>Study/exam achievements:</td><td>CO1: Attitude assessment is carried out at each meeting by observation and/or self-assessment techniques using the assumption that basically every student has a good attitude. The student is given a value of very good or not good attitudeif they show it significantlycompared to other students in general. The result of attitude assessment is not a component of the final grades, but as one of therequirements to pass the course. Students will pass from this course if at least have a good attitude.

The final mark will be weight as follow:

<table>
<tr><th>No</th><th>CO</th><th>Assessment Object</th><th>Assessment Technique</th><th>Weight</th></tr>
<tr><td>1.</td><td>CO2,
CO3,
CO4,
CO5</td><td>a. Individual assignment
b. Presentation
c. Mid-Term Examination
d. Final Examination</td><td>Observation
Written test</td><td>20%

20%
30%

30%</td></tr>
<tr><td></td><td></td><td></td><td>Total</td><td>100%</td></tr>
</table>
</td></tr>
<tr><td>Forms of media:</td><td>Board, LCD Projector, Laptop/Computer</td></tr>
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Literature:	1. Hanke, J. E. & Wichern, DW. 2005. *Business forecasting*. New Jersey: Pearson Prentice-Hall. 2. Wei, WWS., 2006, *Time series analysis*. Boston: Pearson Education. 3. Fausett, L. 1994.*Fundamentals of neural networks: Architecture, algorithms, and applications*. New Jersey, NJ: Prentice Hall.

PLO and CO mapping

	PLO1	PLO2	PLO3	PLO4	PLO5	PLO6	PLO7	PLO8	PLO9	PLO10
CO1		✓								
CO2				✓						
CO3					✓					
CO4									✓	
CO5										✓