



**UNIVERSITAS NEGERI PADANG**  
 FACULTY OF MATHEMATICS AND NATURAL SCIENCES  
 MATHEMATICS DEPARTMENT, MATHEMATICS STUDY PROGRAM  
 Main Campus Universitas Negeri Padang.  
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**Bachelor of Science in Mathematics**

**MODULE HANDBOOK**

Module name:	Statistics Methods for Actuarial Sciences
Module level,if applicable:	Bachelor
Code:	MAT2.62.7009
Subheading,if applicable:	-
Classes,if applicable:	Statistics Methods for Actuarial Sciences
Semester:	7 <sup>th</sup> (seventh)
Module coordinator:	Head of Actuarial Expertise Group
Lecturer(s):	Dr. Devni Prima Sari, M.Sc. and Dina Agustina, S.Pd., M.Sc.
Language:	Indonesian Language and English
Classification within the curriculum:	Elective Course in fourth year (7 <sup>th</sup> semester) Bachelor Degree
Teaching format / class hours per week during the semester:	a. Lectures : Problem Based Learning with methods such as presentations, group and class discussion. (3 x 50 minutes = 150 minutes) b. Structured assignment : Weekly individual written assignment. (3 x 60 minutes = 180 minutes) c. Individual study (3 x 60 minutes = 180 minutes)
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.
Credit points:	3 sks = 4.53 ECTS
Prerequisites course(s):	Elementary Statistics; Probability theory
Course outcomes:	After taking this course the students have ability to: CO1. Describe basic of regression and time series. CO2. Analyze classic assumption test. CO3. Solve problems for regression time series analysis using software. CO4. Solve problems for time series using software.

<p>Content:</p>	<p>This course consists of introduction to regression analysis, simple regression, multiple regression (characteristics of OLS estimator, classical assumption test, inference of parameters), regression with dummy variables, regression with stochastic independent variables, serial correlation and heteroscedasticity in regression models, Generalized Least Square Estimator (GLS ) and its properties, extrapolation and refinement of time series data, seasonal time series models, stationary time series models, random-walk models, cointegration models, moving average models, autoregression models, ARMA, ARIMA, ARIMA model estimates, Diagnostic checks, forecasting with the ARIMA model, application of models and computational studies using econometric software.</p>
<p>Study/exam achievements:</p>	<p>The final grade will be weighted as follows:</p> <p>The assessment consists of a final project (40%), a midterm exam (30%), and an assignment (20%) and Class Activities (Participation, Attitude, and Presence)(10%)</p> <p>The final project: students make an article related to the various of models that already learned before.</p> <p>Weekly tasks (fixing specific problems) come in two flavors: group and individual.</p> <p>A midterm test is taken to examine whether students understand the theory covered in the half-semester course.</p> <p>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 attitude if they show it significantly compared to other students in general. The result of attitude assessment is not a component of the final grades, but as one of the requirements to pass the course. Students will pass from this course if at least have a good attitude.</p>
<p>Forms of media:</p>	<p>White Board, laptop, Projector, e-learning via elearning2.unp.ac.id, and zoom meeting.</p>
<p>Literature:</p>	<ol style="list-style-type: none"> <li>1. Gujarati, Damodar N. (2007). Dasar-dasar Ekonometrika Jilid 1, Edisi Ketiga. Jakarta: Erlangga.</li> <li>2. Gujarati, Damodar N. (2007). Dasar-dasar Ekonometrika Jilid 2, Edisi Ketiga. Jakarta: Erlangga.</li> <li>3. Rosadi, D. (2012). Ekonometrika &amp; Analisis Runtun Waktu Terapan dengan EViews. Yogyakarta: ANDI.</li> </ol>

