



UNIVERSITAS GADJAH MADA

Faculty of Mathematics and Natural Sciences

Mathematics Department

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Doctoral Program in Mathematics

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MODULE HANDBOOK
Doctoral in Mathematics

Module name:	Panel data Analysis															
Module level, if applicable:	Doctoral															
Code, if applicable:	MMM 5418															
Semester(s) in which the module is taught:	1 st (first) year															
Person responsible for the module:	Chair of Analysis Statistics Research Group															
Lecturer(s):	Prof. Dr.rer.nat. Dedi Rosadi, S.Si., M.Sc.															
Language:	Bahasa Indonesia															
Relation to curriculum:	Doctoral Degree in Mathematics, Elective Course															
Credit points:	3 Semester Credit Unit															
Type of teaching, contact hours:	3x50 minutes lectures, 3x60 minutes structured activities.															
Workload:	3 hours lectures, 3 hours structured activities, 3 hours individual study, 16 weeks per semester (including mid-term and final examinations), 144 hours per semester.															
Recommended prerequisites:	Students have learned some basic course in statistics and statistical mathematics course Students also have some basic knowledge on statistical software, such as R and Eviews															
Module objectives/intended learning outcomes:	After completing this course the students have ability to : CO 1. understand the theoretical aspect of modeling panel data using the linear panel models CO2.. use econometric software for panel data analysis and interpret the output from econometric software to do an appropriate statistical analysis CO3. Understand some extended panel model															
Content:	Some basic theory from statistics and mathematics, linear panel model (fixed and random effect model), computation of linear panel model using R and Eviews, some extended model: incomplete linear panel model, dynamic panel, cointegration panel, spatial panel model, special topics															
Study and examination requirements and forms of examination:	The final mark will be weighted as follows: <table border="1"> <thead> <tr> <th>No</th> <th>Assessment methods (components, activities)</th> <th>Weight (percentage)</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>Final Examination</td> <td>35%</td> </tr> <tr> <td>2</td> <td>Mid-Term Examination</td> <td>30%</td> </tr> <tr> <td>3</td> <td>Projects/Presentation</td> <td>25%</td> </tr> <tr> <td>4</td> <td>Peer Assessment/Quiz</td> <td>10%</td> </tr> </tbody> </table> Final grade will be determined as follows: Grade Criteria The initial cut-off points for grades A, B, C, and D should not be less than 80%, 65%, 50%, and 40%, respectively.	No	Assessment methods (components, activities)	Weight (percentage)	1	Final Examination	35%	2	Mid-Term Examination	30%	3	Projects/Presentation	25%	4	Peer Assessment/Quiz	10%
No	Assessment methods (components, activities)	Weight (percentage)														
1	Final Examination	35%														
2	Mid-Term Examination	30%														
3	Projects/Presentation	25%														
4	Peer Assessment/Quiz	10%														
Media employed:	Board, LCD Projector, Laptop/Computer															
Reading List:	1. Badi H. Baltagi, Econometric analysis of Panel Data 5th eds, 2013, Wiley															

	<ol style="list-style-type: none"> 2. Hsiao, C. H., Analysis of Panel Data, 3rd ed., 2014, Cambridge University Press 3. Wooldridge, J. M., Econometrics Analysis of Cross Section and Panel data 2nd eds, 2010, MIT Press 4. Schoot, James R., 2016. Matrix Analysis for Statistics, 3rd eds. John Willy & Sons Inc, Canada 5. Recent publication on panel data analysis
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Mapping of The COs and PLOs

	PLO – 1 S3 Mat	PLO – 2 S3 Mat	PLO – 3 S3 Mat	PLO – 4 S3 Mat	PLO – 5 S3 Mat	PLO – 6 S3 Mat
CO 1	v	v	v		v	
CO 2	v	v	v		v	
CO 3	v	v	v		v	v

Programme Learning Outcomes (PLO) Doctoral Programme in Mathematics

PLO-1	:	<p>Attitude:</p> <p>Devote to God Almighty, uphold the humanity values, internalize academic values and ethics, responsible in working in the area of expertise independently.</p>
PLO-2	:	<p>Knowledge:</p> <p>Mastering philosophy of mathematics and one of the fields in mathematics (algebra, analysis, applied mathematics, statistics, computational mathematics, computational statistics).</p>
PLO-3	:	<p>Knowledge:</p> <p>Able to think logically, analytically, inductively, deductively, and structured; having the ability to manage, lead, and develop research programs independently, and able to communicate the thoughts as well as his work to the scientific community and the general public.</p>
PLO-4	:	<p>Skill:</p> <p>Creating new concepts and / or new methods (original) in the field of mathematics that are recognized nationally and internationally.</p>
PLO-5	:	<p>Skill:</p> <p>Able to apply mathematics according to their field of expertise to solve problems including those that require a multidisciplinary, cross-disciplinary, or trans-disciplinary approach.</p>
PLO-6	:	<p>Life Long Learning:</p> <p>Having lifelong learning skills and adaptive to the development of science and technology, especially in fields related to Mathematics and its applications.</p>