

**UNIVERSITAS GADJAH MADA**  
Faculty of Mathematics and Natural Sciences  
Department of Mathematics

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## Graduate Program in Mathematics

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## MODULE HANDBOOK

Module Name	Analisis Multivariat (Multivariate Analysis)
Module level, if applicable	Master Program
Code, if applicable	<b>MMM5404</b>
Subtitle, if applicable	-
Courses, if applicable	-
Semester(s) in which the module is taught	4/Second year
Person responsible for the module	Chair of Statistics Laboratory
Lecturer(s)	Dr. Gunardi, M.Si.
Language	Bahasa Indonesia
Relation to curriculum	Elective <i>for</i> 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 a semester
Credit points	3

Required and recommended prerequisites for joining the module	-
Module objectives/intended learning outcomes	<p>On successful completion of this course, students should be able to:</p> <ul style="list-style-type: none"> <li>● CO 1 understands <b>Multivariate Random Variables</b></li> <li>● CO 2 understands the Theory of Estimation dan Hypothesis Testing</li> <li>● CO 3 understands Multivariate techniques</li> <li>● CO 4 Aply Multivariate analysis</li> </ul>
Content	Multivariate Random Variables, Multivarite distributions, Theory of the Multinormal, Theory of Estimation, Hypothesis testing, Principal components analysis, Factor analysis, Cluster analysis, Discriminant analysis, Correspondence analysis.
Examination forms	<i>oral presentation and essay.</i>
Study and examination requirements	<p>The weight of assignments will be as follows:</p> <ol style="list-style-type: none"> <li>1. Quiz, homework, presentation 30%</li> <li>2. Mid-semester exam 35%</li> <li>3. Final exam 35%</li> </ol>
Media employed	online platforms, Learning management systems, LCD projectors, and whiteboards.
Reading list	<ol style="list-style-type: none"> <li>1. Hardle, W. and Simar L., 2007, <i>Applied Multivariate Statistical Analysis</i>, Springer Berlin..</li> <li>2. Khattree, R. and Naik, D. N., 2003, <i>Applied Multivariate Statistics with SAS Software</i>, John Wiley &amp; Sons, Inc.</li> </ol>

### 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				
CO 4				x			

**Compilation Date** : 2/1/2023

**Modified Date** : 2/1/2023