



UNIVERSITAS GADJAH MADA

Faculty of Mathematics and Natural Sciences

Mathematics Department

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Undergraduate Programme in Mathematics

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MODULE HANDBOOK

Module name	Applied Linear Algebra II												
Module level, if applicable	Bachelor												
Code, if applicable	MMM-3209												
Subtitle, if applicable	-												
Courses, if applicable	Applied Linear Algebra II												
Semester(s) in which the module is taught	6 th (sixth)												
Person responsible for the module	Chair of the Lab. of Algebra												
Lecturer(s)	Dr.rer.nat. Indah Emilia Wijayanti												
Language	Bahasa Indonesia												
Relation to curriculum	Elective Course												
Type of teaching, contact hours	150 minutes lecture, 180 minutes supervised activities												
Workload	Total workload is 90.67 hours per semester, which consists of 100 minutes lectures per week for 14 weeks, 120 minutes structured activities per week, 120 minutes individual study per week, in total is 16 weeks per semester, including mid exam and final exam.												
Credit points	2												
Requirements according to the examination regulations	Students have taken Applied Linear Algebra II course (MMM-3209) and have an examination card where the course is stated on.												
Recommended prerequisites	Students have taken Introduction to Linear Algebra course (MMM-2202) and have participated in the final examination of the course.												
Module objectives/intended learning outcomes	Upon successful completion, students have ability to: CO 1. apply linear algebra concept to solve some linear transformation problems; CO 2. apply linear algebra concept to solve some operator problems; CO 3. apply linear algebra concept to analyze further representation matrices.												
Content	<ol style="list-style-type: none"> Eigenvalues, eigenvectors, eigenspace, characteristic polynomials. Diagonalization operators, similarity. Differential matrices first order, eigenvalues estimation. Adjoint operators, Spectral Theorem and applications. Generalized eigenvalues, Hermit operator extreme problems. Bilinear forms, representation matrices of bilinear forms and diagonalization. 												
Study and examination requirements and forms of examination	<p>The final mark will be weighted as follows:</p> <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% – 45%</td> </tr> <tr> <td>2</td> <td>Mid-Term Examination</td> <td>30% – 35%</td> </tr> <tr> <td>3</td> <td>Class Activities: Quiz, Homework, etc.</td> <td>25% – 30%</td> </tr> </tbody> </table> <p>The initial cut-off points for grades A, B, C, and D should not be less than 80%, 70%, 50%, and 40%, respectively.</p>	No	Assessment methods (components, activities)	Weight (percentage)	1	Final Examination	35% – 45%	2	Mid-Term Examination	30% – 35%	3	Class Activities: Quiz, Homework, etc.	25% – 30%
No	Assessment methods (components, activities)	Weight (percentage)											
1	Final Examination	35% – 45%											
2	Mid-Term Examination	30% – 35%											
3	Class Activities: Quiz, Homework, etc.	25% – 30%											
Media employed	Boards, projectors.												
Reading List	<ol style="list-style-type: none"> John T. Scheick, 1997, <i>Linear Algebra with Applications</i>, McGraw-Hill International Editions. Steven Roman, 2008, <i>Advanced Linear Algebra</i>, Springer, New York. 												

PLO and CO Mapping

	PLO 1	PLO 2	PLO 3	PLO 4	PLO 5	PLO 6	PLO 7	PLO 8	PLO 9
CO 1					v			v	
CO 2					v			v	
CO 3					v			v	