



UNIVERSITAS GADJAH MADA

Faculty of Mathematics and Natural Sciences

Mathematics Department

Sekip Utara Bulaksumur Yogyakarta 55281 Telp: +62 274 552243 Fax: +62 274 555131 Email: math@ugm.ac.id Website: matematika.fmipa.ugm.ac.id

Master in Mathematics

Telp : +62 274 552243

Email : maths2@ugm.ac.id; kaprodi-s2-matematika.mipa@ugm.ac.id

sekprodi-s2-matematika.mipa@ugm.ac.id

Website : <http://s2math.fmipa.ugm.ac.id/>

MODULE HANDBOOK

Module name	Generalized Invers Matrices												
Module level, if applicable	Master												
Code, if applicable	MMM-5210												
Subtitle, if applicable													
Courses, if applicable	Generalized Invers Matrices												
Semester(s) in which the module is taught	2												
Person responsible for the module	Algebra Research Group												
Lecturer(s)	Dr. rer.nat. Ari Suparwanto, M.Si. Dr. Al. Sutjijana, M.Sc. Dr. Sutopo, M.Si.												
Language	Bahasa Indonesia												
Relation to curriculum	Master Degree, Elective Course												
Teaching methods	Lecture, discussion, presentations, homework etc.												
Workload	Total workload is 136 hours per semester, which consists of 150 minutes lectures per week for 14 weeks, 180 minutes structured activities per week, 180 minutes individual study per week, in total is 16 weeks per semester, including mid exam and final exam.												
Credit points	3 Credits												
Requirements according to the examination regulations	Students have an examination card where the course is stated on.												
Recommended prerequisites	Students should be proficient in linear algebra. And Matrix Analysis												
Module objectives/intended learning outcomes	After completing this course the students should have: CO 1 explain existence and construction of generalized inverses CO 2 apply generalized inverses to solve linear systems and characterize generalized inverses CO 3 explain the spectral properties (i.e., properties relating to eigenvalues and eigenvectors) of generalized inverses CO 4 apply generalized inverses to solve linear equations and matrices in partitioned form.												
Content	a. Existence and Construction of Generalized Inverses b. Linear Systems and Characterization of Generalized Inverses c. Spectral Generalized Inverses d. Generalized Inverses of Partitioned Matrices e. Computational Aspects of Generalized Inverses f. Miscellaneous Applications												
Study and examination requirements and forms of examination	The final mark will be weighted as follows: <table border="1" style="width: 100%; border-collapse: collapse;"> <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>25-40%</td> </tr> <tr> <td>2.</td> <td>Mid-Term Examination</td> <td>25-40%</td> </tr> <tr> <td>3.</td> <td>Quiz/Presentation, Homework</td> <td>20-50%</td> </tr> </tbody> </table> <p>To pass the course, the minimum grade is C (50%)</p>	No	Assessment methods (components, activities)	Weight (percentage)	1.	Final Examination	25-40%	2.	Mid-Term Examination	25-40%	3.	Quiz/Presentation, Homework	20-50%
No	Assessment methods (components, activities)	Weight (percentage)											
1.	Final Examination	25-40%											
2.	Mid-Term Examination	25-40%											
3.	Quiz/Presentation, Homework	20-50%											

Media employed	White/Black Board, LCD Projector, Laptop/Computer, Zoom, E-Learning, Simaster
Reading List	<ol style="list-style-type: none"> 1. Adi Ben-Israel and Thomas N.E. Greville, <i>Generalized Inverses Theory and Applications</i>, Springer, 2003 2. Boullion, T. L. and Odell, P. L., <i>Generalized Inverse Matrices</i>, John Wiley & Sons, New York, 1971 3. Rao, C. R. And Mitra, S. K., <i>Generalized Inverse of Matrices and its Applications</i>, Wiley, New York, 1971.

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	v	v	v			
CO 3	v		v	v	v	v			
CO 4	v	v	v	v	v	v			

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