



# 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

<b>Module name:</b>	<b>Capita Selecta in Algebra</b>															
<b>Module level, if applicable:</b>	Doctoral Program															
<b>Code, if applicable:</b>																
<b>Semester(s) in which the module is taught:</b>	Odd / Even Semester															
<b>Person responsible for the module:</b>	Chair of Algebra Research Group															
<b>Lecturer(s):</b>	1. Prof. Dr. Sri Wahyuni 2. <i>All other eligible lecturers</i>															
<b>Language:</b>	Bahasa Indonesia															
<b>Relation to curriculum:</b>	Doctoral Degree in Mathematics, Compulsory / Elective Course															
<b>Credit points:</b>	3 Semester Credit Unit															
<b>Type of teaching, contact hours:</b>	3x50 minutes lectures, 3x60 minutes structured activities.															
<b>Workload:</b>	<ul style="list-style-type: none"> <li>• 3x50 minutes lectures,</li> <li>• 3x60 minutes structured activities,</li> <li>• 3x60 minutes individual study,</li> <li>• In 16 weeks per semester (including assignments and examinations)</li> </ul>															
<b>Recommended prerequisites:</b>	NONE															
<b>Module objectives/intended learning outcomes:</b>	<b>Before taking this course, the students must have a good understanding the abstract concept.</b>															
<b>Content:</b>	<p>On satisfying the requirements of this course, students will have the knowledge and skills to:</p> <p>CO-1. Explain the fundamental concepts of advanced algebra and their role in modern mathematics and applied contexts</p> <p>CO-2. Demonstrate accurate and efficient use of advanced algebraic techniques</p> <p>CO-3. Demonstrate capacity for mathematical reasoning through analyzing, proving and explaining concepts from advanced algebra</p>															
<b>Study and examination requirements and forms of examination:</b>	<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</td> <td>25%</td> </tr> <tr> <td>4</td> <td>Peer Assessment/Quiz</td> <td>10%</td> </tr> </tbody> </table> <p>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.</p>	No	Assessment methods (components, activities)	Weight (percentage)	1	Final Examination	35%	2	Mid-Term Examination	30%	3	Projects	25%	4	Peer Assessment/Quiz	10%
No	Assessment methods (components, activities)	Weight (percentage)														
1	Final Examination	35%														
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3	Projects	25%														
4	Peer Assessment/Quiz	10%														
<b>Media employed:</b>	White/Black Board, LCD Projector, Laptop/Computer															
<b>Reading List:</b>	<i>The reading list will be announced by the lecturer on the first meeting.</i>															

**Mapping of The COs and PLOs**

	<b>PLO – 1 S3 Math</b>	<b>PLO – 2 S3 Math</b>	<b>PLO – 3 S3 Math</b>	<b>PLO – 4 S3 Math</b>	<b>PLO – 5 S3 Math</b>	<b>PLO – 6 S3 Math</b>
<b>CO 1</b>		√	√			
<b>CO 2</b>			√		√	
<b>CO 3</b>					√	√

**Programme Learning Outcomes (PLO) Doctoral Programme in Mathematics**

<b>PLO-1</b>	:	<b>Attitude:</b>  Devote to God Almighty, uphold the humanity values, internalize academic values and ethics, responsible in working in the area of expertise independently.
<b>PLO-2</b>	:	<b>Knowledge:</b>  Mastering philosophy of mathematics and one of the fields in mathematics (algebra, analysis, applied mathematics, statistics, computational mathematics, computational statistics).
<b>PLO-3</b>	:	<b>Knowledge:</b>  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.
<b>PLO-4</b>	:	<b>Skill:</b>  Creating new concepts and / or new methods (original) in the field of mathematics that are recognized nationally and internationally.
<b>PLO-5</b>	:	<b>Skill:</b>  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.
<b>PLO-6</b>	:	<b><i>Life Long Learning:</i></b>  Having lifelong learning skills and adaptive to the development of science and technology, especially in fields related to Mathematics and its applications.