UNIVERSITAS GADJAH MADA
Faculty of Mathematics and Natural Sciences
Department of Mathematics
Sekip Utara Bulaksumur Yogyakarta 55281 Telp: +62 274 552243 Fax: +62 274 555131 Email: math@ugm.ac.id Website: http://math.fmipa.ugm.ac.id

Doctor in Mathematics

MODULE HANDBOOK

Telp : +62 274 552243
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Website : http://s3math.fmipa.ugm.ac.id/

Module designation	Topics in the Riesz Spaces
Code, if applicable	MMM-7110
Subtitle, if applicable	-
Semester(s) in which the module is taught	1st or 2nd semester
Person responsible for the module	Chair of the Lab. of Analysis
Language	Bahasa Indonesia
Relation to curriculum	Elective course
Teaching methods	Lecture, classroom discussion, flipped learning
Workload (incl. contact hours, self-study hours)	Total workload is 232 hours per semester, which consists of 50 minutes lectures per week, 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 in Credit Units	3
Required and recommended prerequisites for joining the module	Students have good knowledge on the concept of vector spaces, set theory, and/or normed spaces.
Module objectives/intended learning outcomes	After completing this course, the students should be able to: CO 1. Justify and prove concepts related to Riesz spaces. CO 2. Combine properties in Riesz spaces to solve problems in the fields related to Riesz spaces
Content	In this module, the student must do several academic activities under the supervision of the lecturer. The academic activities will be conducted based on a literature study to master one or more topics in Riesz spaces, such as 1. Riesz spaces: Riesz spaces, ideals and bands, Archimedean spaces, order convergence, projection bands, Dedekind completeness, spektral theorems in Riesz spaces.

	2. Banach lattices: Riesz spaces, ideals and bands, order convergence, Dedekind completeness, normed Riesz space. and Banach lattices, the Riesz-Fischer property, order continuous norm, order continuous dual. 3. Operator in Riesz spaces or Banach lattices: Riesz spaces or Banach lattices, ideals and bands, order convergence, linear operators, order bounded operators, order continuous operators, order duals in Riesz spaces.
Examination forms	Essay, oral presentation
Study and examination requirements	The final mark will be weighted as follows: Weight (percentage) 1 Final Examination: 1. Final project/presentation/oral exam/essay 30% - 40% 2. Mid-Term Examination: presentation/oral exam/essay 30% - 40% 3. Class Activities: presentation, quiz, homework, etc 20% - 30% To pass the course, the minimum grade is B.
Media employed	Whiteboard, screen, laptop
Reading list	1. *Meyer-Nieberg, 1991, Banach Lattices, Springer* 2. Zaanen, A.C., 1997, Introduction to Operator Theory in Riesz Spaces, Springer. 3. Luxemburg, W.A.J., and Zaanen, A.C., 1971, Riesz Spaces, American Elsevier Pub. Co. 4. Aliprantis, C. and Burkinshaw, O., 2006, Positive Operators, Springer. 5. Kalauch, A. and Onno van Gaans, 2019, Pre-Riesz Spaces, De Gyuter.

CO-PLO Mapping

	PLO 1	PLO 2	PLO 3	PLO 4	PLO 5	PLO 6
CO 1	v	v	v			v
CO 2	v	v	v			v

Last Modified Date : 4 September 2023

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Module designation	Topics in the Riesz Spaces
Code, if applicable	MMM-7110
Subtitle, if applicable	Riesz spaces
Semester(s) in which the module is taught	1st or 2nd semester
Person responsible for the module	Chair of the Lab. Of Analysis
Language	Bahasa Indonesia
Relation to curriculum	Elective course
Teaching methods	Lecture, classroom discussion, flipped learning
Workload (incl. contact hours, self-study hours)	Total workload is 232 hours per semester, which consists of 50 minutes lectures per week, 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 in Credit Units	3
Required and recommended prerequisites for joining the module	Students have good knowledge of the concept of vector spaces and set theory.
Module objectives/intended learning outcomes	After completing this course, the students should be able to: CO 1. Justify and prove concepts related to Riesz spaces. CO 2. Combine properties in Riesz spaces to solve problems in the fields related to Riesz spaces

Content	In this module, the student must do several academic activities under the supervision of the lecturer. The academic activities will be conducted based on a literature study to master basic theories in Riesz spaces, such as Riesz spaces, ideals and bands, Archimedean spaces, order convergence, projection bands, Dedekind completeness, spectral theorems in Riesz spaces.
Examination forms	Essay, oral presentation
Study and examination requirements	The final mark will be weighted as follows: Weight (percentage) 1 Final Examination: final project/presentation/oral exam/essay 30% - 40% 2 Mid-Term Examination: presentation/oral exam/essay 30% - 40% 3 Class Activities: presentation, quiz, homework, etc 20% - 30% To pass the course, the minimum grade is B.
Media employed	Whiteboard, screen, laptop
Reading list	1. Zaanen, A.C., 1997, Introduction to Operator Theory in Riesz Spaces, Springer. 2. Luxemburg, W.A.J., dan Zaanen, A.C., 1971, Riesz Spaces, American Elsevier Pub. Co. 3. Aliprantis, C. dan Burkinshaw, O., 2006, Positive Operators, Springer. 4. Kalauch, A. dan Onno van Gaans, 2019, Pre-Riesz Spaces, De Gyuter.

CO-PLO Mapping

	PLO 1	PLO 2	PLO 3	PLO 4	PLO 5	PLO 6
CO 1	v	v	v			v
CO 2	v	v	v			v

Last Modified Date: September 04, 2023

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Module designation	Topics in the Riesz Spaces
Code, if applicable	MMM-7110
Subtitle, if applicable	Banach lattices
Semester(s) in which the module is taught	1st or 2nd semester
Person responsible for the module	Chair of the Lab. Of Analysis
Language	Bahasa Indonesia
Relation to curriculum	Elective course
Teaching methods	Lecture, classroom discussion, flipped learning
Workload (incl. contact hours, self-study hours)	*Total workload is 232 hours per semester, which consists of 50 minutes lectures per week, 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 in Credit Units	*3*
Required and recommended prerequisites for joining the module	Students have good knowledge on the concept of vector spaces, set theory, and/or normed spaces.
Module objectives/intended learning outcomes	After completing this course, the students should be able to: CO 1. Justify and prove concepts related to Banach lattices. CO 2. Combine properties in Banach lattices to solve problems in the fields related to Banach lattices

Content	In this module, the student must do several academic activities under supervision of the lecturer. The academic activities will be conducted based on literature study to master basic theories in Banach lattices, such as Riesz spaces, ideals and bands, order convergence, Dedekind completeness, normed Riesz space and Banach lattices, the Riesz-Fischer property, order continuous norm, order continuous dual.
Examination forms	Essay, oral presentation
Study and examination requirements	The final mark will be weighted as follows: Weight (percentage) 1 Final Examination: final project/presentation/oral exam/essay 30% - 40% 2 Mid-Term Examination: presentation/oral exam/essay 30% - 40% 3 Class Activities: presentation, quiz, homework, etc 20% - 30% To pass the course, the minimum grade is B.
Media employed	Whiteboard, screen, laptop
Reading list	1. Meyer-Nieberg, 1991, Banach Lattices, Springer. 2. Zaanen, A.C., 1997, Introduction to Operator Theory in Riesz Spaces, Springer. 3. Luxemburg, W.A.J., dan Zaanen, A.C., 1971, Riesz Spaces, American Elsevier Pub. Co. 4. Aliprantis, C. dan Burkinshaw, O., 2006, Positive Operators, Springer. 5. Kalauch, A. dan Onno van Gaans, 2019, Pre-Riesz Spaces, De Gyuter.

CO-PLO Mapping

	PLO 1	PLO 2	PLO 3	PLO 4	PLO 5	PLO 6
CO 1	v	v	v			v
CO 2	v	v	v			v

Last Modified Date: September 04, 2023

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Module designation	Topics in the Riesz Spaces
Code, if applicable	MMM-7110
Subtitle, if applicable	Operators in Riesz spaces or Banach lattices
Semester(s) in which the module is taught	1st or 2nd semester
Person responsible for the module	Chair of the Lab. Of Analysis
Language	Bahasa Indonesia
Relation to curriculum	Elective course in the 1st semester/2nd semester doctor's degree
Teaching methods	Lecture, classroom discussion, flipped learning
Workload (incl. contact hours, self-study hours)	Total workload is 232 hours per semester, which consists of 50 minutes lectures per week, 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 in Credit Units	3
Required and recommended prerequisites for joining the module	Students have good knowledge on the concept of vector spaces and set theory.
Module objectives/intended learning outcomes	After completing this course, the students should be able to: CO 1. Justify and prove concepts related to operators in Riesz spaces or Banach lattices. CO 2. Combine properties in Riesz spaces or Banach lattices to solve problems in the fields related to operators in Riesz spaces or Banach lattices

Content	In this module, the student must do several academic activities under supervision of the lecturer. The academic activities will be conducted based on literature study to master basic theories of operators in Riesz spaces or Banach lattices, such as Riesz spaces or Banach lattices, ideals and bands, order convergence, linear operators, order bounded operators, order continuous operators, order duals in Riesz spaces.
Examination forms	Essay, oral presentation
Study and examination requirements	The final mark will be weighted as follows: Weight (percentage) 1 1. Final Examination: final project/presentation/oral exam/essay 30% - 40% 2. Mid-Term Examination: presentation/oral exam/essay 30% - 40% 3. Class Activities: presentation, quiz, homework, etc 20% - 30% To pass the course, the minimum grade is B.
Media employed	Whiteboard, screen, laptop
Reading list	1. Meyer-Nieberg, 1991, Banach Lattices, Springer. 2. Zaanen, A.C., 1997, Introduction to Operator Theory in Riesz Spaces, Springer. 3. Luxemburg, W.A.J., and Zaanen, A.C., 1971, Riesz Spaces, American Elsevier Pub. Co. 4. Aliprantis, C. and Burkinshaw, O., 2006, Positive Operators, Springer. 5. Kalauch, A. and Onno van Gaans, 2019, Pre-Riesz Spaces, De Gyuter.

CO-PLO Mapping

	PLO 1	PLO 2	PLO 3	PLO 4	PLO 5	PLO 6
CO 1	v	v	v			v
CO 2	v	v	v			v

Last Modified Date: September 04, 2023.