

Module name		Real Analysis and Probability			
Module level, if applicable		Master's degree in 1 st year			
Code, if applicable		MST-515			
Semester(s) in which the module is taught		2 nd (second)			
Person responsible for the module		Atina Ahdika Dr.			
Lecturer		Atina Ahdika Dr.			
Language		Bahasa Indonesia			
Relation to curriculum		Compulsory course for BISA concentration in the first year (2 nd semester) Master Degree			
Types of teaching and learning	Class size	Attendance time (hours per week per semester)	Form of active participation	Workload (hours per semester)	
Interactive Lecturing	< 20	2.5	Problem solving	Face to face teaching	35
				Structured activities	48
				Independent study	48
				Exam	5
Total Workload		136 hours			
Credit points		3 CUs / 5.1 ECTS			
Requirements according to the examination regulations		Minimum attendance at lectures is 75%. Final score is evaluated based on quiz, assignment, mid-term exam, and final exam.			
Recommended prerequisites		-			
Related course		-			
Module objectives/intended learning outcomes		After completing this course, the students have ability to: CO1. Apply the real analysis concept in probability CO2. Understand and apply the probability theory CO3. Understand and implement the large number law, martingale theory and central limit theorem in statistical problem			
Content		1. Field and sigma-field 2. Measurement theory and measurable function 3. Integral theory 4. Convergence concept and L-p space 5. Probability space: discrete and continuous 6. Independency and conditional probability 7. Convergence theorem and it's application 8. Martingale theorem and it's application 9. Central limit theorem application for normal distribution convergence			
Study and examination requirements and forms of examination		The final mark will be weighted as follows:			
		No	Assessment components	Assessment types	Weight (percentage)
		1	CO 1	Assignment, Quiz, Midterm Exam	30%

	2	CO 2	Assignment, Quiz, Final Exam	30%
	3	CO 3	Assignment, Quiz, Midterm Exam	40%
Media employed	Google Classroom, relevant websites, slides (power points), video, interactive media, white-board, laptop, LCD projector			
Reading list	1. RM Dudley, 2018, Real Analysis and Probability, Chapman and Hall, CRC press 2. Robert B Ash, 1972, Real Analysis and Probability, Academic Press, London			

Date :	Date :	Date : May 5, 2023
Authorized by Head of Study Program:	Examined by Coordinator of Cluster Interest	Prepared by Lecturer/Coordinator of Lecturers:
Rohmatul Fajriyah	Jaka Nugraha, Prof., Dr.	Dr. Atina Ahdika