



UNIVERSITAS GADJAH MADA

Faculty of Mathematics and Natural Sciences

Department of Mathematics

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Master in Mathematics

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MODULE HANDBOOK

Module Name	Modeling and Risk Theory
Module level, if applicable	Master Program
Code, if applicable	MMM-5503
Subtitle, if applicable	-
Courses, if applicable	Modeling and Risk Theory
Semester(s) in which the module is taught	2/1st year
Person responsible for the module	Chair of Lab. Statistics
Lecturer(s)	Danang Teguh Qoyyimi, Ph.D
Language	<i>Bahasa Indonesia</i>
Relation to curriculum	<i>Compulsory</i>
Teaching methods	<i>Lecture, laboratory work</i>
Workload (incl. contact hours, self-study hours)	3x50 minutes lecture, 6 hours individual study per week, 14 weeks per semester. Total 119 hours a semester
Credit points	3
Required and recommended prerequisites for joining the module	

Module objectives/intended learning outcomes	After completing this course the students have ability to : CO-1 Understand the fundamental concepts of probability and risk's random variables CO-2 Understand the basic concept and its applications on rdistributional quantities CO-3 Master the characteristic of actuarial models and their applications CO-4 Capable of solving actuarial problems using continuous, discrete and aggregate models
Content	The course will cover: Random variables, basic distributional quantities, frequency distributions, (a, b, 0) and (a, b, 1) classes, severity distributions, advanced frequency and severity distributions, frequency and severity with coverage modifications: deductibles, policy limits, coinsurance, aggregate loss models, computing the aggregate claim distributions, recursive method for aggregate models.
Examination forms	The weight of assignments will be as follows: i. Quiz, homework 15% ii. Project 10% iii. Mid semester exam 30% iv. Final exam 45%
Study and examination requirements	
Media employed	Slides and LCD projectors, laptop, whiteboards
Reading list	<i>Loss Models: From Data to Decisions</i> , (Fifth Edition), 2019, by Klugman, S.A., Panjer, H.H. and Willmot, G.E., Wiley, ISBN: 978-1-119-52378-9.

CO-PLO Mapping

	PLO 1	PLO 2	PLO 3	PLO 4	PLO 5	PLO 6
CO-1			√			
CO-2			√			
CO-3					√	
CO-4					√	

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