DOCTORAL (PHD) STUDIES
COURSE DESCRIPTION

Course title	Field of science	Faculty	Institute
Stochastic Processes	Mathematics (N 001)	Faculty of Mathematics and Informatics	Institute of Applied Mathematics

Study method	Number of credits	Study method	Number of credits
Lectures	0	Consultations	1
Individual work	4	Seminars	0

Course summary
1. Statinary processes. Branching processes. Random walk. Markov chains.   2. Poisson process. Compaund Poisson process. Counting processes.   3. Martingale.   4. Continuous time processes. Markov processes. Brownian motion.   5. Regularity of stochastic processes.   6. Levy processes.

Main literature
1. S. Resnick. *Adventures in Stochastic Processes*. Birkhauser, 1992.
2. K. Sato. *Levy Processes and Infinitely Divisible Distributions*. Cambridge University Press, 2002.
3. S. M. Ross. *Stochastic Processes.* New York, Academic press, 1996.
4. R. Dobrow. Introduction to Stochastic processes with R., Wiley, 2016.

Consulting teacher	Scientific degree	Pedagogical name	Main publications in the field of science of the last 5 year period
Alfredas Račkauskas	Habil. dr.	Prof.	1. A. Račkauskas. Asymptotic normality of sums of Hilbert space valued random elements. *Georgian mathematical journal.* 28(3):459–469, 2021. https://doi.org/10.1515/gmj-2019-2075 2. R. Norvaiša, A. Račkauskas. Uniform asymptotic normality of weighted sums of short-memory linear processes. *Journal of applied probability*, 57(1):174–195, 2020. https://doi.org/10.1017/jpr.2019.86 3. A. Račkauskas, M. Wendler. Convergence of U-processes in Holder spaces with application to robust detection of a changed segment. *Statistical papers*, 61(4):1409–1435 https://doi.org/10.1007/s00362-020-01161-9 4. A. Račkauskas, Ch. Suquet. On Bernstein-Kantorovich invariance principle in Holder spaces and weighted scan statistics, *ESAIM: probability and statistics,* 24:186–206, 2020 https://doi.org/10.1051/ps/2019027 5. R Norvaiša, A. Račkauskas. Uniform asymptotic normality of self-normalized weighted sums of random variables *Lithuanian mathematical journal,* 59(4): 575–594, 2019 https://doi.org/10.1007/s10986-019-09461-w

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Board Chairman – assoc. prof. dr. Kristina Lapin