

**DOCTORAL (PHD) STUDIES
COURSE DESCRIPTION**

Course title	Field of science	Faculty	Institute
Probabilistic Number Theory	Mathematics (N 001)	Faculty of Mathematics and Informatics	Institute of Mathematics
Study method	Number of credits	Study method	Number of credits
Lectures	0	Consultations	1
Individual work	4	Seminars	0

Course summary
<p>Lassical results on arithmetical functions. Mean values of multiplicative functions. Sieve, moments and analytical methods. Finite probability spaces. Laws of large numbers. Integral theorems foe additive and multiplicative functions. Local limits theorems for additive functions. Limits theorems for sequences of additive functions.</p>
Main literature
1. Elliott P. D. R. A., <i>Probabilistic Number Theory</i> . V. 1-2, Springer, 1979–1980.
2. Kubilius J., <i>Probabilistic Methods in the Ttheory of Numbers</i> , 5th edn, AMS, Rhoad Island, 1999..
3. Tennebaum G., <i>Introduction to Analytic and Probabilistic Nnumber Theory</i> , Cambridge, 1995.

Consulting teacher	Scientific degree	Pedagogical name	Main publications in the field of science of the last 5 year period
Jonas Šiaulyš	Dr. (HP)	Prof.	<ol style="list-style-type: none"> 1. E. Bernackaitė, J. Šiaulyš, The finite-time ruin probability for an inhomogeneous renewal risk model. <i>Journal of Industrial and Management Optimization</i>, 2017, 13, 207-222. 2. S. Danilenko, J. Šiaulyš, G. Stepanauskas, Closure properties of O-exponential distributions. <i>Statistics and Probability Letters</i>, 2018, 140, 63-70. 3. J. Šiaulyš, G. Stepanauskas, L. Žvinytė, Discrete uniform limit law for a sum of additive functions on shifted primes. <i>Lithuanian Mathematical Journal</i>, 2018, 58, 235-248. 4. R. Leipus, J. Šiaulyš, On a closure property of convolution equivalent class of distributions. <i>Journal of Mathematical Analysis and Applications</i>, 2020, 490, 124226. 5. M. Dirma, S. Paukštys, J. Šiaulyš, Tails of the moments for sums with dominatedly varying random summands. <i>Mathematics</i>, 2021, 9, 824.
Eugenijus Manstavičius	Habil. dr.	Prof.	<ol style="list-style-type: none"> 1. E. Manstavičius, Sharp bounds for the variance of linear statistics on random permutations. <i>Random Structures and Algorithms</i>, 2020, 57, 1303-1313. 2. E. Manstavičius, V. Stepas, Moments of additive statistics with respect to the Ewens sampling formula. <i>Publicationes Mathematicae – Debrecen</i>, 2019, 95, 259-277. 3. E. Manstavičius, R. Petuchovas, Local probabilities and total variation distance for random permutations. <i>Ramanujan Journal</i>, 2017, 43, 679-696.

			4. E. Manstavičius , V. Stepas, Variance of additive functions defined on random assemblies. Lithuanian Mathematical Journal, 2017, 57, 222-235.
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Approved by the Board of Faculty of Mathematics and Informatics 10/12/2021. Resolution No. (1.5 E) 110000-TPN-42

Board Chairman – assoc. prof. dr. Kristina Lapin