DOCTORAL (PHD) STUDIES
COURSE DESCRIPTION

Course title	Field of science	Faculty	Institute
Statistics	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. Properties of samples (various types of convergence, delta method, generating random samples); 2. Point estimators and hypothesis testing (methods of estimation, methods of construction of statistical tests); 3. Asymptotic estimators (methods of construction of confidence intervals, properties of confidence intervals); 4. Asymptotic analysis (point estimators, robustness, testing hypothesis, confidence intervals); 5. Analysis of variance. Linear regression.
Main literature
1. Casella, George, and Roger Berger. *Statistical Inference*. 2nd ed. Pacific Grove, CA: Thomson Learning, 2002
2. Shao, Jun. *Mathematical Statistics*. 2nd ed. New York: Springer, 2003
3. Borovkov, Aleksandr Alekseevich, and Moullagaliev, A. *Mathematical Statistics*. Gordon and Breach Science Publishers, 1999

Consulting teacher	Scientific degree	Pedagogical name	Main publications in the field of science of the last 5 year period
Jurgita Markevičiūtė	Ph.D.	Assoc. Prof.	1. Markevičiūtė, Jurgita; Bernatavičienė, Jolita; Levulienė, Rūta; Medvedev, Viktor; Treigys, Povilas; Venskus, Julius. Attention-based and time series models for short-term forecasting of COVID-19 spread // CMC-Computers, materials & continua. 2022, vol. 70, no. 1, p. 695-714. DOI: 10.32604/cmc.2022.018735. [Science Citation Index Expanded (Web of Science)] 2. Venskus, Julius; Treigys, Povilas; Markevičiūtė, Jurgita. Unsupervised marine vessel trajectory prediction using LSTM network and wild bootstrapping techniques // Nonlinear analysis : modelling and control. 2021, vol. 26, no. 4, p. 718-737. DOI: 10.15388/namc.2021.26.23056. [Science Citation Index Expanded (Web of Science)] 3. Markevičiūtė, Jurgita. Functional limit theorems in Hölder space for residuals of nearly nonstationary AR(1) process // Probability and mathematical statistics. 2017, Vol. 37, fasc. 1, p. 163-183. [Science Citation Index Expanded (Web of Science)] 4. Danilenko, Svetlana; Markevičiūtė, Jurgita; Šiaulys, Jonas. Randomly stopped sums with exponential-type distributions // Nonlinear analysis: modelling and control. 2017, Vol. 22, No. 6, p. 793-807. DOI: 10.15388/NA.2017.6.5. [Science Citation Index Expanded (Web of Science)]
Rūta Levulienė	Ph.D.	Assoc. Prof.	1. Bagdonavičius, Vilijandas; Levulienė, Rūta. Testing proportional hazards for specified covariates // Modern stochastics: theory and applications. Vilnius; Kiev : VTeX. ISSN 2351-6046. eISSN 2351-6054. 2019, vol. 6, no. 2, p. 209-225. (Straipsnis DB Clarivate Analytics Web of Science).

			2. Bagdonavičius, Vilijandas; Levulienė, Rūta. On accelerated life testing when the AFT model fails // IEEE transactions on reliability. Piscataway : IEEE. ISSN 0018-9529. eISSN 1558-1721. 2019, vol. 68, iss. 4, p. 1311-1319. (Straipsnis DB Clarivate Analytics Web of Science) 3. Bagdonavičius, Vilijandas; Hafdi, Mohamed Ali; Levulienė, Rūta. Modeling and analysis of data with confounding covariates and crossing of the hazard functions // Communications in statistics - theory and methods. Philadelphia : Taylor & Francis. ISSN 0361-0926. eISSN 1532-415X. 2021, vol. 50, no. 20, p. [5262-5284]. (Straipsnis DB Clarivate Analytics Web of Science) 4. Markevičiūtė, Jurgita; Bernatavičienė, Jolita; Levulienė, Rūta; Medvedev, Viktor; Treigys, Povilas; Venskus, Julius. Attention-based and time series models for short-term forecasting of COVID-19 spread. CMC-Computers, materials & continua, ISSN 1546-2218. eISSN 1546-2226. 2021, first published online. (Straipsnis DB Clarivate Analytics Web of Science)

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