Forschungsgruppe Finanz- und Versicherungsmathematik
TUM School of Computation, Information and Technology
Technische Universität München

# Announcement Winter Term 2025/2026

# Advanced Seminar

# Econometric Analysis of Count and Binary Time Series

**Prof. Dr. Aleksey Min**

**Area: / Modulnr.:** Mathematical Finance/ MA6011

**Content**: Binary and count time series models are valuable tools for analyzing financial data that exhibit non-Gaussian structures. In this master's seminar, students will explore non-classical univariate time series models. In addition, the seminar will cover topics such as Granger causality and the HAC (Heteroskedasticity and Autocorrelation Consistent) estimator. Students will present recent research papers, with a focus on both practical applications and the underlying mathematical proofs.

**Continued next Semester:** No

**Audience**: 8 master students

**Prerequisite:** MA3702 (Financial Mathematics 2)

**Literature**:

**1. Fasano et al. (2021**): A closed-form filter for binary time series. *Statistics and Computing*. https://doi.org/10.1007/s11222-021-10022-w
**2. Davis et al. (2021):** Count Time Series: A Methodological Review. *Journal of the American Statistical Association*. https://doi.org/10.1080/01621459.2021.1904957
**3. Cohn al. (2022**): Count (and count-like) data in finance. *Journal of Financial Economics*. https://doi.org/10.1016/j.jfineco.2022.08.004
**4. Shojaie and Fox (2021):** Granger Causality: A Review and Recent Advances. *Annual Review of Statistics and Its Application*. https://doi.org/10.1146/annurev-statistics-040120-010930
**5. Mesfioui et al. (2023**): Copula-based link functions in binary regression models. *Statistical Papers*. https://doi.org/10.1007/s00362-022-01330-y
**6. Newey and Fest (1994):** Automatic Lag Selection in Covariance Matrix Estimation. *The Review of Economic Studies*. https://www.jstor.org/stable/2297912

**Certificate**: 3 CP

**Seminar information:** The preliminary online-meeting to the seminar (Online Seminarvorbesprechung) will take place on **June 27, at 17:00** in ZOOM. Please write an e-mail to **min@tum.de** to get an access to this ZOOM-meeting.