



COURSE UNIT (MODULE) DESCRIPTION

| Course unit (module) title | Code |
|----------------------------|------|
| Applied Finance | |

| Academic staff | Core academic unit(s) |
|--|--|
| Coordinator: Nora Marija Laurinaitytė Other(s): Yue Qin | Faculty of Economics and Business Administration |

| Study cycle | Type of the course unit |
|--------------------|-------------------------|
| First (Bachelor's) | Compulsory |

| Mode of delivery | Semester or period when it is delivered | Language of instruction |
|------------------|---|-------------------------|
| Face-to-face | Fifth semester | English |

| Requisites | |
|--|-------------------------------------|
| Prerequisites: Statistical Theory, Theory and Practice of Econometrics, Finance | Co-requisites (if relevant): |

| Number of ECTS credits allocated | Student's workload (total) | Contact hours | Individual work |
|----------------------------------|----------------------------|---------------|-----------------|
| 5 | 130 | 36 | 94 |

| Purpose of the course unit | | |
|---|-------------------------------|---|
| This course provides students with practical examples, having real-world relevance, of application of econometric methods, tools, and financial models, and provides hands-on experience of modelling, forecasting, and interpreting econometric output in finance. | | |
| Learning outcomes of the course unit | Teaching and learning methods | Assessment methods |
| 1.2 Statistically describe and interpret financial data. | Lectures and tutorials | Individual assignments/homework (15%) Final exam (85%) |
| 2.2 Interpret results from estimated financial models and use them in decision making. | Lectures and tutorials | |
| 4.2 Have the ability to communicate knowledge in the field of finance to specialist and non-specialist audiences clearly and unambiguously. | Tutorials | |
| 5.2 Have necessary learning skills to continue to study in a manner that may be largely self-directed or autonomous. | Tutorials | |

| Content | Contact / Individual work: time and assignments | | | | | | | | Tasks for individual work |
|--|---|-----------|----------|-----------|-----------------|------------|----------------------|-----------------|---|
| | Lectures | Tutorials | Seminars | Workshops | Laboratory work | Internship | Contact hours, total | Individual work | |
| Introduction to the course. Review of definitions in statistics. Statistical properties of financial data. | 3 | | | | | | 3 | 6 | Brooks Ch 1.11.4, 2.1, 2.3-2.7. |
| Review of Ordinary Least Squares (OLS) estimator. Estimating and testing the Capital Asset Pricing Model (CAPM). Factor models. Factor Zoo. | 3 | 3 | | | | | 6 | 16 | Brooks Ch 3, 4.1-4.9, 5.1-5.15, 14.2 Selected papers |
| Instrumental Variables (IV) and search for identification. Finance and Growth, Corporate Governance - structure of corporate boards, Corporate Finance – optimal leverage and debt overhang. | 3 | 3 | | | | | 6 | 16 | Angrist and Krueger (2001) Selected papers |
| Review of Maximum Likelihood (ML) estimator. Stock market participation puzzle, Testing for behavioral biases. | 2 | 1 | | | | | 3 | 8 | Brooks Appendix 9.1. Selected papers |
| Overview of credit risk management. Limited dependent variable regression models. | 2 | 1 | | | | | 3 | 12 | First Homework Assignment |
| Introduction to credit scoring models and goodness of fit tests (KS, CAP, GINI) Credit ratings, ratings transitions, and ratings agencies. | 4 | 1 | | | 1 | | 6 | 10 | Lecture slides, Selected papers |
| Credit states and roll rate models. Loan Modification and Servicing. | 2 | 1 | | | | | 3 | 10 | Second Homework Assignment |
| Introduction to Fintech. Fintech lending. Fintech's impact on credit scoring: big data and alternative data. | 3 | 3 | | | | | 6 | 16 | Third Homework Assignment |
| Total | 22 | 13 | | | 1 | | 36 | 94 | |

| Assessment strategy | Weight % | Deadline | Assessment criteria |
|---------------------------------|----------|------------------------|--|
| Individual assignments/homework | 15% | During the course | Application of learned material to specific questions. |
| Written exam | 85% | End of autumn semester | The final exam will consist of open questions in which students have to show their analytical capabilities and knowledge. The final exam will test the material from the whole course. |

| Author (-s) | Publishing year | Title | Issue no. or volume | Publishing house or web link |
|---|-----------------|---|---|---|
| Required reading | | | | |
| The slides as well as online resources will be made available to all students | | | | |
| Brooks, C. | 2019 | Introductory Econometrics for Finance | Fourth edition | Cambridge University Press |
| Angrist, J. D., and Krueger A. B. | 2001 | Instrumental Variables and the Search for Identification: From Supply and Demand to Natural Experiments | Journal of Economic Perspectives, 15 (4): 69–85. | DOI: 10.1257/jep.15.4.69 |
| Recommended reading | | | | |
| Verbeek, M. | 2017 | A Guide to Modern Econometrics | Fifth edition | Wiley |
| Eugene F. Fama, Kenneth R. French | 1993 | Common risk factors in the returns on stocks and bonds | Journal of Financial Economics, Volume 33, Issue 1, Pages 3-56 | https://doi.org/10.1016/0304-405X(93)90023-5 |
| Feng, G., Giglio, S. and Xiu, D. | 202 | Taming the factor zoo: A test of new factors | The Journal of Finance, 75(3), pp.1327-1370. | https://doi.org/10.1111/jofi.12883 |
| Tobias Berg, Valentin Burg, Ana Gombović, Manju Puri, | 2020 | On the Rise of FinTechs: Credit Scoring Using Digital Footprints | <i>The Review of Financial Studies</i> , Volume 33, Issue 7, Pages 2845–2897, | https://doi.org/10.1093/rfs/hhz099 |
| Vives, Xavier | 2019 | Digital disruption in banking | Annual Review of Financial Economics, Volume 11, Pages 243-272. | https://doi.org/10.1146/annurev-financial-100719-120854 |
| Robert G. King and Ross Levine | 1993 | Finance and Growth: Schumpeter Might be Right | The Quarterly Journal of Economics Vol. 108, No. 3, pp. 717-737 | https://doi.org/10.2307/2118406 |
| Rajan, R. G., & Zingales, L. | 1998 | Financial Dependence and Growth. | The American Economic Review, 88(3), 559–586. | http://www.jstor.org/stable/116849 |

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| Gennaro Bernile, Vineet Bhagwat, Scott Yonker | 2018 | Board diversity, firm risk, and corporate policies | Journal of Financial Economics, Volume 127, Issue 3, Pages 588- 612 | https://doi.org/10.1016/j.jfineco.2017.12.009 |
| Xavier Giroud, Holger M. Mueller, Alex Stomper, Arne Westerkamp | 2012 | Snow and Leverage | The Review of Financial Studies, Volume 25, Issue 3, March 2012, Pages 680– 710, | https://doi.org/10.1093/rfs/hhr113 |