

Syllabuses

TES0020 Statistics

Course code: TES0020

Course title in Estonian: Statistika

Course title in English: Statistics

ECTS credits: 6.0

Assessment form: Examination

Course aims: The main objectives are: 1) to give knowledge about concepts and methods used in statistics for business and economics; 2) to develop analytical thinking of students; 3) to give statistical data handling and presentation skills.

Brief description of the course: The science of statistics. Observation theory. The observational data handling. Absolute and ratio numbers. Graphical methods for describing quantitative data. Measures of central tendency and variability. Probability distributions (binomial, Poisson and normal distribution, t-distribution, Fisher and chi-square distribution). Correlation, regression and analysis of variance. Time series: elementary analysis, smoothing, analysis of seasonality, forecasting. Index numbers. Sampling and inferences based on a sample. Hypothesis testing (t-test, chi-square test, F-test).

Learning outcomes: After accomplishing this course the student has an overview of concepts and methods used in economics and business studies, he/she can understand the statistics presented in the professional literature, perform statistical calculations in MS Excel and use number of statistical methods to make conclusions and decisions.

Study literature: Sauga, A. Statistika õpik majanduseriala üliõpilastele, TTÜ Kirjastus, 2017, 766 lk (Sauga, A. Statistics for economics, 2017, 766 pp, in Estonian)

Weekly hours: 4.0 (lectures 2.0, practices 2.0)

Study programmes that contain the course: Applied Economics (TAAB02), Business (TABB02), Public Administration and Governance (HAAB02), Law (HAJB08).

TES1040 Econometrics

Course code: TES1040

Course title in Estonian: Ökonomeetria

Course title in English: Econometrics

ECTS credits: 5.0

Assessment form: Examination

Course aims: The first objective is to increase the breadth of students understanding of econometrics methods and to develop students' skills of model building and testing. The second objective is to get students familiar with the art of conducting empirical work in econometrics using suitable computational software.

Brief description of the course: Economic data and economic models. Properties of estimators. Hypothesis testing. Simple regression. Log-linear regression models. Economic data and economic models. Properties of estimators. Hypothesis testing. Simple regression. Log-linear regression models. Applications to production functions. Multiple regression. Application to economic growth. Dummy variables and restricted coefficients. Applications to cost functions. Model discovery. Nonlinear regression. Heteroskedasticity.

Panel data. Stochastic processes and stochastic time-series. Testing of stationarity: the unit root test. ARIMA modelling and Box-Jenkins methodology. Cointegration. Modelling limited dependent variable (logit and probit models).

Learning outcomes: After completing the course it is expected that the student is able to: 1) Reflect about the appropriate choice of estimator given certain types of data such as time series data, panel data, and data with a binary dependent variable. 2) Formulate and estimate econometric models based on different data sets such as cross-sections, time series and panel data. 3) Interpret outcomes of econometric analyses and draw appropriate conclusions.

Study literature: 1. Brooks, C., *Introductory Econometrics for Finance*. 2. Paas, T. *Sissejuhatus ökonomeetrias*, Tartu, 1995 (Paas, T., *Introduction to Econometrics*, in Estonian).

Weekly hours: 3.0 (lectures 1.0, practices 1.0, exercises 1.0)

Study programmes that contain the course: Applied Economics (TAAM02), Finance and Accounting (TARM02).

TES9140 Time Series Econometrics

Course code: TES9140

Course title in Estonian: Aegridade ökonomeetria

Course title in English: Time Series Econometrics

ECTS credits: 6.0

Assessment form: Examination

Course aims: This is course in time series econometrics with focus on applications in macroeconomics, international finance, and finance. We will cover univariate and multivariate models of stationary and nonstationary time series in the time domain.

Brief description of the course: Difference Equations. Stationary Time-Series Models. Modelling Economic Time Series: Trends and Volatility. Testing for Trends and Unit Roots. Multiequation Time-Series models. Cointegration and Error-Correction Models. Nonlinear models.

Learning outcomes: After completing the course it is expected that the student is able to formulate and estimate econometric models based on different time series data, interpret outcomes of econometric analyses and draw appropriate conclusions.

Study literature: 1. Enders, W. "Applied Econometric Time Series", 1995. 2. C. Chatfield, 1996, "The Analysis of Time Series. An Introduction", 1996. 3. Brooks, C., "Introductory Econometrics for Finance". 4. J. Johnston and J. DiNardo, "Econometric Methods". 5. H. Lütkepohl, "New Introduction to Multiple Time Series Analysis".

Weekly hours: 4.0 (lectures 2.0, exercises 2.0)

Study programmes that contain the course: Economics and Business Administration (TADD02)