Learning outcome, core skills:
As the outcome of this advanced course the students are able to
- identify problems of estimation and inference arising due to stochastic regressors,
- establish finite sample and asymptotic properties of estimators under the assumption that the data generating process contains stochastic regressors,
- model simple univariate stationary and non-stationary time series processes,
- carry out and interpret test results of unit root and cointegration tests,
- set up, and estimate (over-, under-) identified simultaneous equation models,
- model simple multivariate time series with possible cointegration,
- implement estimators and analyze real world datasets with the R programming language.

Workload:
Attendance time: 56 h
Self-study time: 124 h

Courses:
1. Econometrics (Lecture)
   Contents:
   Stochastic regressors in linear econometric models; OLS, IV, 2SLS, GMM estimators;
   Dynamic linear econometric models: stationary stochastic processes, ARMA models, (testing) unit roots, (testing) cointegration, spurious regression;
   Simultaneous equation models: Identification, estimation (GLS, IV, 2SLS, 3SLS, ILS)
   Vector autoregressive and error correction models: Interpretation, estimation, inference.

2. Econometrics II (Exercise)
   Contents:
   Exercises deepening concepts from the lecture, and demonstrating practical applications. Simulations and data analysis exercises using the R programming language.

Examination: Written examination (90 minutes)

Examination requirements:
The students demonstrate their understanding of advanced econometric concepts. They show that they can apply these concepts to real economic problems.

Admission requirements: none

Recommended previous knowledge:
Module M.WIWI-QMW.0004: Econometrics I

Language: English

Person responsible for module:
Prof. Dr. Helmut Herwartz

Course frequency:
each summer semester

Duration:
1 semester[s]

Number of repeat examinations permitted:
twice

Recommended semester:
2 - 3

Maximum number of students:
1
| not limited |  |