APPLIES TO ACADEMIC YEAR 2010/2011

DRE 7002 Time Series Econometrics

Programme
Economics

Responsible for the course

Department
Department of Economics

Term
According to study plan

ECTS Credits
6

Language of instruction
English

Introduction
The aim of the course is to give the students a formal understanding of time series econometrics at a level expected among Ph.D students in economics, finance and related disciplines.

Learning outcome
After taking this course students should have a solid knowledge of the basic techniques used in time series econometrics, so that eventually they can master and produce sophisticated applied econometric analysis. The students will learn univariate and multivariate models of stationary and nonstationary time series, including structural VARs. The students will learn to master the main estimation methods, such as maximal likelihood, instrumental variables and GMM.

Prerequisites
Admission to a PhD Programme is a general requirement for participation in PhD courses at BI Norwegian School of Management.

External candidates are kindly asked to attach confirmation of admission to a PhD programme when signing up for a course with the doctoral administration. Candidates can be allowed to sit in on courses by approval of the course leader. Sitting in on courses does not permit registration for courses, handing in exams or gaining credits for the course. Course certificates or conformation letters will not be issued for sitting in on courses

Compulsory reading
Books:
Hamilton, James D. 1994. Time series analysis. Princeton, N.J. : Princeton University Press

Articles:
During the course there may be hand-outs and other material on additional topics relevant for the course and the examination

Recommended reading
Books:
Favero, Carlo A.. 2001. Applied macroeconometrics. Oxford : Oxford University Press. Chapter 1,2,3, 6, 7 and 8
Lütkepohl, Helmut. 1991. Introduction to multiple time series analysis. Berlin : Springer

Course outline
I. Univariate stationary time series
- Stationary ARMA processes
- Forecasting
- Spectral analysis

II. Models of non-stationary time series
- Deterministic and stochastic trends, unit root tests, structural change
- Trend/cycle decompositions (linear filters)

- Analysis of business cycles in the frequency domain, spurious cycles

II!. Vector autoregression (VAR) methodology
- Granger causality, cointegration.
- Structural VARs – impulse responses, forecast error variance decomposition
- Identification: Cholesky, long-run restrictions and sign restrictions

IV. Methods of Estimation
- Instrumental variables (IV) estimation
- Maximum likelihood estimation
- Generalized method of moments (GMM) estimation

Computer-based tools
The course uses modern statistical software such as EVIEWS, RATS or MATLAB. Knowledge of EXCEL is required.

Learning process and workload
Workload (6 ECTS)

Lectures	30 hours
Specified learning activities (including reading)	75 hours
Autonomous student learning (including exam preparation)	75 hours
Total	180 hours

Course structure and grading:
The course will we taught in three intensive modules. Each module consists of 2*5 hours (2 days and 5 hours per day).

Students are required to participate in class – both in discussions and by presenting models/material from the reading lists – as well as solve and hand in solutions to exercises and problems.

Examination
The final grade is pass/fail. 30 hours home exam.

Examination code(s)
DRE 70021 accounts for 100% of the grade

Examination support materials

Re-sit examination
Re-takes are only possible at the next time a course will be held. When the course evaluation has a separate exam code for each part of the evaluation it is possible to retake parts of the evaluation. Otherwise, the whole course must be re-evaluated when a student wants to retake an exam.

Additional information
Honour Code
Academic honesty and trust are important to all of us as individuals, and represent values that are encouraged and promoted by the honour code system. This is a most significant university tradition. Students are responsible for familiarizing themselves with the ideals of the honour code system, to which the faculty are also deeply committed.

Any violation of the honour code will be dealt with in accordance with BI's procedures for cheating. These issues are a serious matter to everyone associated with the programs at BI and are at the heart of the honour code and academic integrity. If you have any questions about your responsibilities under the honour code, please ask.