Humboldt-Universität zu Berlin
Institut für Wirtschaftstheorie II
Andreas Tryphonides, Ph.D.
Wintersemester 2017

Macroeconometrics (M.Sc.) (in English)

- **Lecture:** Wednesdays 10.00-12.00, Rm. 23
- **Credits:** 4 SWS (6 CP)
- **Module:** **Themen der Makroökonomie (6 SP)**
- **Repetition:** Thursdays 14.00 – 18.00, Rm. PC25
- **Office hours:** **Andreas Tryphonides, Ph.D.** TBA

What determines business cycle fluctuations? How can we make causal statements in macroeconomics in general? In this course, students will study concepts, methods and techniques used in empirical macroeconomics. Therefore, it will be a good complement to advanced macroeconomics courses. The course consists of three blocks (see tentative schedule below). In the first block, the course covers basic time series models, estimation and inference methods and forecasting. In the second block, the course will introduce students to the identification of causal effects in macroeconomic time series through restrictions coming from economic theory and/or other information. The third block, subject to time availability, will be devoted to more advanced topcs. Students will also learn how to program in Matlab.

The course consists of a weekly lecture throughout the semester (2SWS). A repetition section (2SWS) will cover analytical and computer exercises. Due to the extensive nature of the material covered, successful completion of the course makes it essential to attend class regularly. Lectures will be in English.

Pre-requisites: IAMA/Advanced Monetary Economics/other advanced macroeconomics courses and Introduction to Econometrics/Macroeconometrics (BSc). In general, students should have taken standard undergraduate level econometrics and be knowledgeable in basic probability and modern dynamic macroeconomic models (DSGE). Some prior knowledge of scientific programming is desirable but not essential for successful completion of the course.

Aims/Outcomes: Upon successful completion of this course, the student should be able to:

(a) Communicate and explain key concepts in (time series) macroeconometrics.
(b) Specify, estimate and critically assess vector autoregressive models.
(c) Understand the concept of identification and the link between DSGE models and the data.
(d) Formulate and solve macroeconometric problems with computer software.
(e) Develop further analytical and computational skills.
(f) Appreciate the differences between empirical approaches to tackle macroeconomic questions.

The following books cover most of the material. Further references/readings will be provided during the lecture.

*Canova, F. (2007) “Methods for Applied Macroeconomic Research”, Princeton University Press
*Hamilton, J.D (1994), Time Series Analysis, Princeton U Press
*Kilian, L and Lütkepohl, H (2017), Structural Vector Autoregressive Analysis (online)
*Lütkepohl, H (2007), New Introduction to Multiple Time Series Analysis, Springer

Tentative Course Outline for "Macroeconometrics"
Wintersemester 2017

- Block 1:
  - Weeks 1-2: Introduction and Preliminaries
    - Time Series Regression/Asymptotic Theory
      - Stock and Watson, Chapters 14-18
    - Concepts in Time Series
      - Hamilton, Chapters 3,4
      - Canova, Preliminaries
  - Weeks 3-4: Stochastic processes, ARMA modelling
    - Hamilton, Chapters 3,2
  - Weeks 5-7: Vector Autoregression (VAR): Specification, Estimation and Testing, Model Selection Criteria
    - Canova, Chapter 4
    - Lutkepohl-Kilian, Chapter 2
- Block 2:
  - Week 8: The Identification Zoo : Causal Effects in Macroeconomics
  - Weeks 9-10: Identification and Estimation Approaches in Structural Vector Autoregressions
    - Lutkepohl-Kilian, Chapters 8,9,12,15
    - Canova, Chapter 4
  - Weeks 11-13: Structural Estimation: GMM/SMM/ML
    - Canova, Chapters 5-7
- Block 3
  - Week 14: Big (Data) Models
    - Lutkepohl-Kilian, Chapter 16
  - Weeks 15-16: Introduction to Bayesian Econometrics
    - Canova, Chapters 9-10