Empirical Methods for Business Cycle Research

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The course provides the students with a set of tools to analyze different set of applied macroeconomic problems that they could need to solve in their own research or in their current day-to-day analysis. The orientation of the course is mainly applied. We will cover theoretical econometric issues but only with the intention of providing the necessary background to confront the data. The course, including the programming part in GAUSS (interested students can translate during the course into MATLAB) is designed to be self-contained requiring just a minimum knowledge of statistics and econometrics. We will provide the students with a CD with all the Gauss codes taught during the course and most of the codes to replicate the results of the papers seen in class.

Syllabus

Session 1: Linear filters for unobserved components.

Theory:


Economic applications:

Permanent and transitory components of economic time series. Coincident indicators. Output gap. NAIRU estimation

Session 2: Non linear filters. Markov switching models.

Theory:


Economic applications:


Session 3: Non linear filters. Threshold and Smooth Threshold models

Theory:
Intuition and motivation. TAR and STAR models. OLS and Maximum likelihood estimations. Linearity tests.

**Economic applications:**

Unemployment in the US. STAR models for the US GDP. STAR models in finance.

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**Session 4: Nowcasting and real time forecasting**

**Theory:**


**Economic applications:**

Forecasting Euro-area GDP in real time.

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**Session 5: New techniques for the measurement of business cycle features**

**Theory:**


**Economic applications:**

European and World Business cycles. Measuring business cycle features and synchronization.