# Econometrics II | ECP77002

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| Year | 1 |
| ECTS Credits | 10 |
| Contact Hours | 20 hours of lecturers and 18 hours of workshops |
| Pre-Requisite | Econometrics I |
| Semester | 2 |
| Module Leader and Lecturer | Professor Martyna Marczak |
| Contact Email | mmarczak@tcd.ie |

**Module Outline:**

This module builds on the fundamental concepts developed in the Econometrics I module and aims to introduce the students to time series econometrics concepts. It also seeks to provide students with the skills required to undertake independent applied research using modern methods in time series econometrics. The course attempts to provide a balance between theory and applied research.

Topics Covered Include:

1. Stationary time series
2. Unit roots and cointegration
3. Simultaneous equations models
4. VAR
5. Panel VAR models

**Module Learning Outcomes:**

Students enrolled in this module will acquire comprehensive theoretical knowledge across various topics within time series econometrics. Additionally, they will develop the essential practical skills required to estimate models utilising time series data independently.

**Recommended Reading List:**

The core texts for this course are:

- Enders, W. (2014). Applied Econometric Time Series, 4th edition
- Greene, W. H. (2017). Econometric Analysis, 8th edition
- Hamilton, J.D. (1994). Time Series Analysis
- Verbeek, M., A Guide to Modern Econometrics, 5th edition

**Syllabus**

**Lectures:**

I. Univariate time series analysis
1. Basic regression analysis with time series
2. Properties of stationary AR, MA, and mixed ARMA processes
3. Box-Jenkins methodology
4. Forecasting with ARMA models
5. Nonstationarity

II. Multivariate time series analysis
1. Simultaneous equation models
2. Vector Autoregressions (VAR)
a. Properties
b. Identification of shocks
c. Impulse-response functions
d. Variance decomposition
3. Structural VAR

**Tutorials:**

Tutorials will aim to instruct students in the use of Stata, practice application of theoretical concepts, and assist students in preparing their term project.

**Assessment:**

Assessment for the module consists of a final exam (50%) and an individual project (50%).