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***Second Semester 2023-24***

***Course Handout (Part‑II)***

Date: **09/01/2024**

In addition to part-I (General Handout for all courses appended to the time table) this portion gives further specific details regarding the course.

*Course No.* : **ECON F420**

## Course Title : **Applied Macroeconometrics**

## Instructor-in-Charge : SHREYA BISWAS ([shreya@hyderabad.bits-pilani.ac.in](mailto:shreya@hyderabad.bits-pilani.ac.in))

**Scope and Objective of the Course:**

The primary focus of the course is to get familiarized with the components of time series and elementary forecasting techniques using univariate and multivariate economic data. In addition to stationary time series analysis, non-stationary time series analysis techniques which are widely applied in modeling economic and financial data are introduced. At the end of the course students should be able to:

1. Understand the nature of time series data.
2. Apply of time series data in finance and macroeconomics
3. Forecast macro time series like inflation, interest rates, etc.
4. Build a time series models using real world data

**Textbooks:**

1. Enders, W.: *Applied Econometric Time Series*, Third edition, John Wiley & Sons.
2. Wooldridge, Jeffrey*: Introductory Econometrics: A Modern Approach*, Fifth edition, Cengage Learning.
3. Favero C.A., *Applied Macroeconometrics,* Oxford, University Press, 2001

Additional reading:

1. Campbell, J.Y.’ Yo, A.W.; and MacKinlay, A.C.: *The Econometrics of Financial Markets*, Princeton University Press.

**Course Plan:**

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| --- | --- | --- | --- |
| **Lecture No.** | **Learning objectives** | **Topics to be covered** | **Chapter in the Text Book** |
| 1-6 | Understanding time series data and its properties | Introduction to time series, Regression analysis with TS data, Distributed lag models, Highly persistent times series | Wooldridge Ch10, 11, 12 |
| 7-15 | Understanding stationary time series data | Stationary time series – AR & MA process, ACFs, PACFs , ARMA models, forecasting, Box-Jenkins Methodology | Enders Ch2 |
| 16-25 | Understanding properties of non-stationary times series | Models with deterministic trend; Structural changes, Models with stochastic trend – unit root processes – ADF tests, asset return prediction using RW model | Enders Ch-4 |
| 26-30 | Modelling volatility | ARCH, GARCH processes, News impact curve, GJR model | Ender Ch3 |
| 31-35 | Multivariate times series analysis | Spurious regression in time series, Cointegration and error correction models | Enders Ch6 |
| 36-40 | Multivariate times series analysis | VAR and Granger causality | Enders Ch5 |

**Evaluation Scheme:**

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| **Component** | **Duration** | **Weightage (%)** | **Date & Time** | **Nature of Component** |
| Quizzes (2 out of 3) | 20 Minutes | 20% |  | OB |
| Assignments (2) |  | 15% |  | OB |
| Mid-semester Exam | 1.5hour | 30% | 11/03 - 4.00 - 5.30PM | CB |
| Comprehensive Exam | 2 Hour | 35% | 07/05 AN | CB |

**Chamber Consultation Hour**: Tue and Thurs- 4:00p.m.-4:30p.m. (with prior email appointment)

**Notice:** All notices will be displayed on CMS and Economics & Finance Notice Board.

**Make-up policy:** Make‐up will be given only on Doctor’s/Warden’s recommendation and with prior (at least 01 day before the test/exam) permission of the Instructor­in­Charge/Instructor.

\*Note: No make-ups for the quizzes.

**Academic Honesty and Integrity Policy**: Academic honesty and integrity are to be maintained by all the students throughout the semester and no type of academic dishonesty is acceptable.

***Instructor‑in‑Charge***

**ECON F420**