ECO374H1F: Forecasting and Time Series Econometrics

Summer 2023, L0101

Department of Economics, University of Toronto

Lectures:	Monday, Wednesday 10 am – 12 pm, online synchronously (Zoom link at Quercus)
Tutorials:	Friday 10 am – 12 pm, online (Zoom link at Quercus)
Instructor:	Prof. Martin Burda
Contact:	416-978-4479, martin.burda@utoronto.ca
Office hours:	Monday 1:00 pm – 3:00 pm, online (Zoom link on Quercus)
TA:	Bingyao Liu
Contact:	bingyaoyao.liu@mail.utoronto.ca
Office hours:	Friday 12:00 pm – 2:00 pm, online (Zoom link on Quercus)

Course Description

The primary objective of the course is to provide students with a solid theoretical and practical foundation for forecasting and time series analysis. The course is built around the statistical foundations and economic application of modeling stochastic processes. Key examples will be drawn from business and financial economics. Students will gain practical hands-on experience working with economic and financial data using R, one of the most popular open-source software environments in data science.

Previous Training

Prerequisites: ECO200Y1/ ECO204Y1/ ECO206Y1, ECO220Y1(70%)/ ECO227Y1/(STA237H1(70%), STA238H1(70%))/(STA257H1, STA261H1)
Recommended: MAT221H1/ MAT223H1/ MAT240H1
The prerequisites are checked by the administration of the Department of Economics and students will be removed from the course list if the prerequisites are not met.

Reference

- González-Rivera, G. (2016) *Forecasting for Economics and Business*, Pearson (rental options are available at Amazon and Routledge)
- Hyndman, R.J., and Athanasopoulos, G. (2018) *Forecasting: Principles and Practice*, 2nd ed (link)
- James, G., Witten, D., Hastie, T., and Tibshirani, R. (2021) *An Introduction to Statistical Learning*, 2nd ed, Springer Texts in Statistics (link)

Specific sections of the texts are given in the course schedule and at the end of each slide set.

Software

We will use R within RStudio with Markdown, an integrated development environment for statistical analysis, visualization, and reporting. No prior knowledge of the software environment is necessary. We will introduce the relevant software components during the course.

Course Evaluation and Policies

The final grade is based on the following:

Task	Weight	Due date
Midterm	30 %	June 2, 2023
Graded Problem Set 1	5 %	June 5, 2023
Graded Problem Set 2	5 %	June 12, 2023
Graded Problem Set 3	5 %	June 19, 2023
Final Exam	55 %	Final Exam Period

The **midterm exam** will have duration of 50 minutes and will contain short-answer questions. Students who miss the midterm exam and wish to request a make-up midterm must complete the Absence Declaration on Acorn and must email the instructor with their request within 24 hours of the missed midterm. Consistent with university policy, a grade of zero will be applied if the make-up exam is requested but missed. If students wish to appeal a grade, they must provide a written explanation of why they believe their grade is mistaken and submit it to the instructor within one week of the exam being returned to the class. The **final exam** will take 2 hours, short answer format. The applicable rules and regulations of the Faculty of Arts and Science govern its conduct.

Problem Sets will be distributed throughout the semester and form the basis of the tutorials. They will consist of both theoretical and computer- (data-) based problems. The problems sets will not be graded but serve to prepare students for the midterm and final exam.

Graded Problem Sets will give students the opportunity to work on graded computer-based tasks using the R software. Students may not copy or paraphrase from any generative artificial intelligence applications, including ChatGPT and other AI writing and coding assistants, for the purpose of completing problem sets in this course.

This course will use **Crowdmark**, a collaborative online grading tool for marking and providing feedback on graded term assessments. Crowdmark provides efficiencies with grading, data recording, returning term assessments and handling regrade requests. Copies of student work marked in Crowdmark, including grading and feedback, will be available online to students for at least one year. Digital (i.e., online) copies will serve as the authoritative record for course administrative purposes, and paper copies of assessments scanned and uploaded to Crowdmark will be destroyed after the term has ended and final grades are approved.

As per the **online synchronous** nature of the class delivery, the Zoom class meetings will **not** be recorded by the instructor. Students' recording, posting online, or other forms of sharing of the online course audio or video stream is prohibited.

If you require **accommodations** for a disability, or have any accessibility concerns about the course, the classroom or course materials, please contact Accessibility Services as soon as possible.