

ECO374, Forecasting and Time Series Econometrics Winter 2021, All Sections

Lecture: Online Asynchronously
Tutorial: Online Asynchronously
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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 experience working with economic and financial data, making use of statistical software.

Course Delivery Method

Lectures and tutorials will be pre-recorded and delivered online asynchronously. Learning is self-paced and not reliant on a meeting schedule. However, pop-quiz and homework will be given based on progress of the posted lectures. For office hours, students need access a computer with functional microphone and be able to use Bb Collaborate (integrated in Quercus) to communicate with the instructor and TA. Students also need to be able to scan, or photo, or type in their homework and upload the documents to Quercus.

Textbook

"Forecasting for Economics and Business" by González-Rivera, 2013, Pearson (Addison-Wesley, Routledge). ISBN-13: 978-0-13-147493-2, ISBN-10: 0-13-147493-6. The book will be available at the University of Toronto Bookstore, or can be purchased from various online bookstores. Data and other resources are available at the book's [companion website](#).

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.

Software

We will make regular use of R, which can be freely downloaded from <https://www.r-project.org/>.

Course Website

The Quercus site will also be used manage class communications. Course materials will be uploaded to the Quercus. Check the announcements posted there regularly.

Score Policy

The final mark of this course is based on four parts: graded homework, the final assessment, Quizzes, and an essay. The weights are shown in the table below.

Graded homework (50%)

There will be four graded homework, each count for 12.5% of the course grades. Homework must be submitted to Quercus in PDF file format. If the homework involves empirical work, R files should be submitted too.

Late homework receives zero grades unless I receive an email notification before the due date. If a student indeed misses the due date of the homework with legitimate reasons, he or she must submit the homework within 72 hours of the original due date to get a mark. Otherwise, the student receives zero grade.

Final Assessment (25%)

We have a final assessment for this course. The assessment will be conducted online (with a time limit and simultaneously for all students). Students are required to finish the test within a certain amount of time, scan (or photo) their answers, and upload the answers to Quercus.

Essay (15%)

The topic of the essay and detailed grading rules will be given in the middle of the semester. There is a 20% penalty for each day of the late submission.

Quizzes (10%)

We will have four quizzes. A student can earn up to 5 points for each quiz. At the end of semester, **two highest quiz scores** will be counted toward the final mark. For example, if a student has quiz scores 5, 4, 2, 0, then his/her total quiz mark will be $5+4=9$.

Students will be given a 48-hours window to access each quiz. But once a student clicks the quiz, he/she must finish it within 10 minutes. The questions are randomly assigned, so two students will likely get different questions (but at the similar difficulty levels).

Course Evaluation

Tasks	Weights	Due Dates
Homework 1	12.5%	January 22
Homework 2	12.5%	Feb 5
Homework 3	12.5%	Feb 22
Homework 4	12.5%	March 5
Quizzes 1-4	10%	TBA
Essay	15%	April 10
Final assessment	25%	TBA
Total	100%	

Planned Course Outline

The following is the planned course outline (subject to minor changes).

Lectures	Course materials	Reference
Lecture 1	Syllabus, Introduction, Statistics Review	Chapter 1, 2, 3
Lecture 2	Statistics Review, tools of forecaster	Chapter 3, 4
Lecture 3	MA Model	Chapter 6
Lecture 4	AR Model	Chapter 7
Lecture 5	Forecasting Practice	Chapter 8, 9
Lecture 6	Nonlinear Models	Chapter 16
Lecture 7	Volatility	Chapter 13-15
Lecture 8	VAR Model	Chapter 11
Lecture 9	VEC Model	Chapter 12
Lecture 10	Decomposition	Slides
Lecture 11	Exponential Smoothing	Slides
Lecture 12	Additional content	TBA
Assessment period	Final Assessment	All lectures

Course Policy

Grade Dispute

Requests for re-grading homework and/or exams must be submitted to instructor in writing within one week that the exam and/or homework are returned. The instructor will re-grade the whole problem set and/or exam instead of a single question to ensure the consistency.

Academic Honesty

“Academic integrity is a fundamental value essential to the pursuit of learning and scholarship at the University of Toronto. Participating honestly, respectfully, responsibly, and fairly in this academic community ensures that the UofT degree that you earn will continue to be valued and respected as a true signifier of a student’s individual work and academic achievement. As a result, the University treats cases of academic misconduct very seriously. The University of Toronto’s Code of Behaviour on Academic Matters (<http://www.governingcouncil.utoronto.ca/policies/behaveac.htm>) outlines the behaviours that constitute academic misconduct, the processes for addressing academic offences, and the penalties that may be imposed. You are expected to be familiar with the contents of this documentAll suspected cases of academic dishonesty will be investigated following the procedures outlined in the Code of Behaviour on Academic Matters.” — Academic Integrity Handbook, Office of Student Academic Integrity, Faculty of Arts and Science, University of Toronto.

Email Policy

I will reply emails within 24 hours, except on weekends and holidays, with the following provisions:

- The question should require a one (or two) sentence response (maximum). If it takes more, office hours are the more appropriate venue.
- I will not reply to emails concerning grading. For such matters, office hours are more appropriate.
- It is also (strongly) preferable that you use the University of Toronto email addresses: my spam filter is set to maximum. Moreover, university policy stipulates a preference for these email addresses.
- Always identify yourself, course and section in your email.
- Please do not submit term work by email.
- The teaching assistant has two email-hours per week to reply course related questions.

Accessibility Needs

The University of Toronto is committed to accessibility. 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: disability.services@utoronto.ca or <http://studentlife.utoronto.ca/accessibility>.