

General Course Information

Instructor:	Professor Yiguo Sun
<i>Email</i>	visun@uoguelph.ca
<i>Office Location</i>	709 MacKinnon
<i>Office Hours</i>	9:00am-5:00pm on Tuesdays, otherwise emails and Teams communications are preferred
<i>Department/School</i>	Department of Economics and Finance

Class Schedule: Mondays & Wednesdays; 02:30PM - 03:50PM; MCKN 238

Seminars/labs: Fridays 10:00 AM - 11:20 AM; MACN 118

Pre-requisites: This course follows ECON3740, where students gained familiarity with OLS estimation and standard hypothesis for analyzing cross-sectional data.

Restrictions: The students are expected to have proficiency in at least one of the following software tools: Python, R, TSP, STATA, EVIEW, SHAZAMS, etc. The course primarily utilizes STATA software for in-class exercises.

Course Description

This fourth-year course in financial econometrics is designed to provide students with an in-depth understanding of advanced statistical techniques and models used in the analysis of financial data. The course will focus on both theoretical foundations and practical applications, enabling students to develop the skills necessary for conducting empirical research in finance.

Course Learning Outcomes

Upon successfully completing this course, you will:

Knowledge and Understanding:

- 1) Acquire a comprehensive understanding of financial econometrics modeling, encompassing advanced techniques for time series data analysis.
- 2) Develop a deep comprehension of empirical finance, including the ability to apply theoretical concepts to real-world financial data and draw meaningful conclusions from empirical analyses.

Discipline/Professional and Transferable Skills:

- 3) Enhance proficiency in computer programming skills, with a focus on applications in financial econometrics.
- 4) Demonstrate the ability to conduct independent research in empirical finance, including the formulation of research questions, data collection, and rigorous analysis.
- 5) Develop effective communication skills to articulate and present research results both in written reports and oral presentations.

Attitudes and Values

- 6) Cultivate the ability to keenly observe the real economy through data, emphasizing integrity and a commitment to conducting research with honesty and transparency.

Summary of Course Content and Materials

- (1) OLS extension to time series data
- (2) Univariate and multivariate time series analysis
- (3) Multivariate models
- (4) Modelling long-run relationships in finance
- (5) Modelling conditional volatility and correlation
- (6) Switching regression models

Course Assessment

			Associated Learning Outcomes	Due Date/ location
Assessment 1:	15%	<i>Three Assignments</i>	<i>Computer skills</i>	<i>Dropbox submission</i>
Assessment 2:	25%	Midterm Exam	<i>Econometric methods</i>	<i>Feb. 12 (Chaps. 5-6)</i>
Assessment 3:	15%	<i>Term Project</i>	<i>Computer skills, econometric methods</i>	<i>Dropbox submission April 4, 2025</i>
Assessment 4:	5%	<i>Presentation</i>	<i>Communication skills</i>	In class; April 1st and 3rd
Assessment 5:	40%	<i>Final Exam</i>	<i>Econometric methods</i>	TBA
Total	100%			

Teaching and Learning Practices

Lectures I will provide two lectures per week.

Course Resources

Required Text:

Brooks, Chris, 2019. *Introductory Econometrics for Finance*, 4th Edition. Cambridge University Press. (Tentatively, we will cover Chapters 4 to 11.)

Cost: Hardcover: \$160.95; Paper back \$68.95; Kindel edition: \$65.5.

Note: The textbook is accessible through the Reserve Service at the McLaughlin Library.

Recommended Text:

Brockwell and R.A. Davis, 2006. *Introduction to Time Series and Forecasting*, 2nd Edition. Springer Verlag; ISBN: 0387947191.

Tsay, R. S., 2010. *Analysis of Financial Time Series*.

Note: Online versions of both books are available through our university's library.

Course Policies

Grading Policies

Unless you have discussed an extension well ahead of the due date with the instructor, late penalties of 5% of the total grade earned per day (including weekends) will be assigned to any assessment (i.e. deducted from the total mark). Extensions will only be granted on the basis of valid medical or personal reasons, and need to be requested via email to the instructor as soon as possible. Late assignments will not be accepted once graded assignments have been returned officially to the class at large, unless circumstances permit and alternative arrangements have been made.

Students who find themselves unable to meet course requirements by the deadlines or the criteria expected because of medical or personal reasons, should review the regulations on academic consideration in the Academic Calendar and discuss their situation with the instructor, program counselor or other academic counselor as appropriate.

<http://www.uoguelph.ca/registrar/calendars/undergraduate/current/c08/c08-grds.shtml>

Missed Assignments and midterm exam:

A grade of zero will be assigned if you fail to submit an assignment or a midterm exam, unless you are ill or have other compassionate reasons. Please read your Undergraduate Calendar for the regulations regarding illness and compassionate grounds. Please note, vacation travel, moving house, or outside work commitments will not be accepted as valid reasons for missing deadlines.

If you have religious observances which conflict with the course schedule or if you are registered with Student Accessibility Services, please contact the course instructor in order to make arrangements for your assessment if appropriate.

Term project:

- A. The term paper is due on **April 4, 2025, and should be approximately ten pages long**. It is preferable that the paper uses a 1.5-line spacing for improved readability.
- B. The term paper should adhere to the following general format, subject to minor adjustments at your discretion:
 1. **Title:** Include a title followed by your name and the date of submission.
 2. **Abstract:** Provide a concise summary of the paper.
 3. **Introduction:** Motivate and explain the paper's purpose, contextualizing your research within existing literature.
 4. **Data:** Specify the data source and present basic summary statistics.
 5. **Model and Estimation Results:** Explain the econometric model used for data analysis and present empirical findings.
 6. **Conclusion:** Summarize the main results and highlight potential pitfalls of the econometric methods employed.
 7. **Tables and Figures:** Choose to either list all tables and figures at the end of the paper or insert them contextually.
 8. **References:** Include a list of relevant articles cited in the paper.
 9. **Program Code:** Insert computer programming code used to produce tables and figures reported in the paper.

Kindly upload **your paper, data, and program code** to Dropbox. If the data file doesn't sufficiently clarify its contents, please include a **Readme.txt** file describing the names of the data variables and other relevant information.

University Policies

Academic Consideration

When you find yourself unable to meet an in-course requirement because of illness or compassionate reasons, please advise the course instructor in writing, with your name, id#, and e-mail contact. See the academic calendar for information on regulations and procedures for Academic Consideration:

<http://www.uoguelph.ca/registrar/calendars/undergraduate/current/c08/c08-ac.shtml>

Academic Misconduct

The University of Guelph is committed to upholding the highest standards of academic integrity and it is the responsibility of all members of the University community, faculty, staff, and students to be aware of what constitutes academic misconduct and to do as much as possible to prevent academic offences from occurring.

University of Guelph students have the responsibility of abiding by the University's policy on academic misconduct regardless of their location of study; faculty, staff and students have the responsibility of

supporting an environment that discourages misconduct. Students need to remain aware that instructors have access to and the right to use electronic and other means of detection. Please note: Whether or not a student intended to commit academic misconduct is not relevant for a finding of guilt. Hurried or careless submission of assignments does not excuse students from responsibility for verifying the academic integrity of their work before submitting it. Students who are in any doubt as to whether an action on their part could be construed as an academic offence should consult with a faculty member or faculty advisor.

The Academic Misconduct Policy is detailed in the Undergraduate Calendar:

<https://www.uoguelph.ca/registrar/calendars/undergraduate/current/c08/c08-amisconduct.shtml>

Accessibility

The University of Guelph is committed to creating a barrier-free environment. Providing services for students is a shared responsibility among students, faculty and administrators. This relationship is based on respect of individual rights, the dignity of the individual and the University community's shared commitment to an open and supportive learning environment. Students requiring service or accommodation, whether due to an identified, ongoing disability or a short-term disability should contact Student Accessibility Services as soon as possible.

For more information, contact SAS at 519-824-4120 ext. 56208 or email sas@uoguelph.ca or see the website: <https://wellness.uoguelph.ca/accessibility/>

Course Evaluation Information

Please refer to the [Blue by Explorance system](#).

Recording of Materials

Presentations which are made in relation to course work—including lectures—cannot be recorded or copied without the permission of the presenter, whether the instructor, a classmate or guest lecturer. Material recorded with permission is restricted to use for that course unless further permission is granted.

Drop date

The last date to drop one-semester courses, without academic penalty, is **Friday, April 4, 2025**. For regulations and procedures for Dropping Courses, see the Academic Calendar:

<https://www.uoguelph.ca/registrar/calendars/undergraduate/current/c08/c08-drop.shtml>