University of Victoria | Economics

ECON 547 A01 Time Series Econometrics

First Term, Sept-Dec 2025

Instructor Name: Dr. Felix Pretis
Office: BEC 388
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Office Hours: Wednesdays 10:30-11:30 and via email appointment.
Lectures: Mondays and Thursdays, 13:00-14:20
Labs: Wednesdays BEC 180 11:30-12:20
Teaching Assistant(s): TBC
Syllabus updated on: August 28th, 2025

UVic Land Acknowledgement

We acknowledge and respect the Lək̓ʷəŋən (Songhees and Xʷsepsəm/Esquimalt) Peoples on whose territory the university stands, and the Lək̓ʷəŋən and W̱SÁNEĆ Peoples whose historical relationships with the land continue to this day.

Course Content

The course provides an overview of time series econometrics focusing on the theory of time series models to highlight core concepts, followed by applications of advanced methods to prepare for students for independent research. The course covers basic asymptotic theory of autoregressive models and introduces modelling relationships between stationary and non-stationary variables through cointegration and the detection of structural breaks and outliers. Additional topics include forecasting and embedding theory in wider information sets as part of model discovery. Applications range from modelling macroeconomic data to time series analysis of climate observations.

Learning Outcomes: In this course you will gain an understanding of econometric time series methods and their applications. Time series econometric theory will equip you with technical knowledge to understand the challenges when working with time series data and allow you to conduct (as well as critically assess) time series research. You will learn the basics of econometric theory as well as independent research skills starting from formulating a well-defined research question, to concise presentation of results (both in an oral presentation and a written paper). The course leads to highly transferrable modelling and programming skills through lab-based instruction using the statistical programming language *R* (widely used in academic research, government roles, and the private sector).

You will learn tools to independently investigate research questions. You will conduct your own research and present your results in a conference-style setting to learn the workflow of research: finding a feasible and novel research question, gathering data, and incorporating feedback received through presentation of results (similar to an academic conference or project presentation encountered in the private sector).

Teaching and assessment modality:

This course is face to face and all exams are held in person. This course will be offered in person following UVic's guidelines. Students may be required to wear masks during lectures, labs, office hours, and exams (subject to public health guidelines). Online (Zoom) office hours may be offered by appointment.

Course Prerequisites

Please see UVic's graduate calendar.

Textbooks & Software

The field of time series econometrics is vast and there is no single textbook that covers all topics considered in this course. Lecture notes will provide an overview with references to journal articles and readings from various relevant books. Useful reference books for the underlying econometric theory are Hamilton (1994) and Hayashi (2000) though you are not expected to purchase these.

Hamilton, J. D. (1994). *Time Series Analysis*. Princeton, NJ: Princeton University press.

Hayashi, F. (2000). *Econometrics*. Princeton, NJ: Princeton University Press.

Software: Please ensure you have access to (and are familiar with) *R (and RStudio)* to complete some of the in-class exercises and assignments (either through lab computers or your personal devices).

Brightspace: Brightspace is used extensively for the course. All students are expected to be fully functional with the system. The lecture notes will be posted in Brightspace. Please note that the lecture notes online are only outlines of the actual lectures. All announcements will be posted in Brightspace. Students are advised to check it frequently.

Assessment

Assessment for this course is based on a midterm exam, a research project (with presentation), a forecasting exercise, regular journal article discussions, and lab attendance. Due to the research focus of the course, there is no final exam. For all submitted assessments, I reserve the right to examine students in person concerning their understanding of their submitted work and adjust their mark accordingly.

Overall Grade Structure:

Research Project	50%
Written Project (35%)	
Presentation (15%)	
Midterm Exam	25%
Journal Article Presentation & Discussion	10%
Forecasting Competition	10%
Lab Attendance	5%

Midterm Exam (25%): The midterm exam will take place during the lecture hours. Topics included in the exam will be announced during lectures.

Research Project & Presentation (50% total): The assessment of the research project is based on a a research presentation of the project (15%) and a final submitted project paper (35%). The final research paper should not exceed 5 pages in length (when using a font size of 11pt with 1.5 line spacing, excluding references)

and will be graded on originality, correctness, and presentation/structure. Concise writing and presentation is important. Further details on the project and presentation will be distributed during class.

The final project should be submitted as a PDF document via email to fpretis@uvic.ca by December 12th, 4pm (Pacific Time). To strengthen your independent research skills, group work is not permitted on the project – every student is required to submit their own project paper.

The conference-style presentations should be roughly 15-25 minutes in length (to be confirmed) and will take place during the final lecture slots. Try to prepare an engaging presentation and not just a talk with simple slides. Be creative! Attendance at the class presentations is mandatory, even if you are not presenting on the day – it is a great learning opportunity to provide feedback to other presenters and learn from your colleagues' work!

Important Note: You are encouraged to go beyond lecture notes and take risks in your research project by applying novel time series methods to datasets and topics not covered in the lecture notes. A technically-correct project using only methods or data presented in the lectures will score at most a B grade. To achieve an A grade, novelty and originality in methods or datasets has to be shown! See below table on the grading scale for further details.

Forecast Competition (10%)**:** The forecasting competition is designed to give you real-world experience of forecasting. As part of the course, we will hold a real-world forecasting competition – using a model you estimate you will be predicting time series observations. While there will be a prize for the most accurate forecasts, the forecast accuracy will not affect your grade. As part of a group (of any size), you will submit your forecasts online, together with a short report (maximum 2 pages + references) describing your forecasting model and resulting forecasts.

Labs (5% total): Lab attendance contributes 5% of the total grade. Students may miss one lab with no penalty.

Journal Article Discussions (10%): Each lecture (exact timing to be confirmed) students will present one (or more) assigned papers from the time series literature and lead a short discussion around the papers. The presentations and discussions should be around 10-15 minutes in length and briefly summarize the main points of the paper and place the paper in the context of the course. The presentations should also include a critical assessment of the paper and lead to a short class-wide discussion. Try to prepare an engaging presentation and not just a talk with simple slides. Be creative! Presentation slots will be assigned at the start of the course. Depending on the number of registered students, there may be more than one paper discussion per student. Please see the grading rubric on Brightspace.

Mandatory/Essential Course Requirements: The midterm exam as well as the final written project (and presentation) must be completed to not receive an "N" on this course.

Grading Scale:

Passing Grades	Percentage	Description
A+ A A-	90-100 85-89 80-84	Exceptional, outstanding performance. Normally achieved by a minority of students. These grades indicate a student who is self-initiating, exceeds expectations and has an insightful grasp of the subject matter.
B+ B B-	77-79 73-76 70-72	Very good, good and solid performance. Normally achieved by the largest number of students. These grades indicate a good grasp of the subject matter or excellent grasp in one or more areas balanced with satisfactory grasp in other areas.
C+ C	65-69 60-64	Satisfactory, or minimally satisfactory. These grades indicate a satisfactory performance and knowledge of the subject matter.
D	50-59	Marginal performance. A student receiving this grade demonstrated a superficial grasp of the subject matter.
Failing Grades		
F	0-49	Unsatisfactory performance. Wrote examinations and completed course requirements.
N	0-49	Did not complete course requirements by the end of term or session.

Course Policies

This course adheres to the Department Course Policies of the Department of Economics that deal with the following issues:

- Academic concessions
- Academic integrity (plagiarism and cheating)
- Attendance
- Grading
- Inclusivity and diversity
- Late adds
- Late assignments
- Repeating courses
- Review of an assigned grade
- Students with a disability
- Term assignments and debarment from examinations
- Travel plans
- Waitlists

The following policies are explicitly included because of their importance.

Late Assignments and Missed Examinations

Consideration for missed examinations or late assignments will be given only on the basis of documented illness (or in-line with the University's policies at the time), accident or family affliction, and for no other reasons. In the event of a missed examination, students are advised to follow the procedures outlined in the University Calendar: University Examination Policies

If a student misses an exam due to one of the above reasons, there may be a makeup exam offered during the Economics department's makeup exam sessions. More than one makeup exam is not regularly given, and students should follow University's guidelines on formal deferrals.

If the forecast report or final research project is submitted late, 10% will be deducted per day past the due date.

Students are advised not to make work or travel plans during lecture hours to be able to attend all classes and examinations. There will be no special accommodation (and no makeup exams) if travel plans conflict with examinations held during class hours or the examination period.

Waitlist Policies

- Instructors have no discretion to admit waitlisted students or raise the cap on the course.
- Students on the waitlist should discuss with the instructor how to ensure they are not behind with coursework in the event they are admitted.
- Registered students who do not show up in the first seven calendar days from the start of the course may be dropped from the course.
- Registered students who decide not to take the course are responsible for dropping the course, and are urged to do so promptly out of courtesy toward waitlisted students.
- Waitlist offers cease after the last date for adding courses irrespective of published waitlists.

Academic Integrity

Academic integrity requires commitment to the values of honesty, trust, fairness, respect, and responsibility. Students are expected to observe the same standards of scholarly integrity as their academic and professional counterparts. Review "What is Plagiarism" for the definition of plagiarism. Note: Submitted work may be checked using plagiarism detection software. In the event of concerns about plagiarism or cheating, I reserve the right to examine students in person concerning their understanding of their submitted work and adjust their mark accordingly. This applies to all exams and submitted work, including problem sets, and the final project.

Students must abide by UVic academic regulations and observe standards of 'scholarly integrity,' (no plagiarism or cheating). This applies to all assignments and exams (take-home or otherwise). All online exams must be taken individually and not with a friend, classmate, or group.

All alleged violations of academic integrity will be investigated and a student who is found to have engaged in unethical academic behaviour, including the practices described in the Policy on Academic Integrity in the University Calendar, is subject to penalty by the University.

Artificial Intelligence (AI)

The use of AI is not permitted during exams. The use of AI (e.g. large language models) is permitted with restrictions for assignments in this course. If you use AI, you must include a statement on which AI was used, what prompts you used, and a short (1 page) report fact-checking the AI output. Should you violate this rule, you will have violated UVic's academic integrity policy and a complaint against you under this policy will be filed accordingly.

Student Code of Conduct

The Humanities, Science, and Social Sciences Faculties have adopted this Student code of conduct. Please, review.

University Policy on Human Rights, Equity and Fairness

The University is committed to promoting, providing and protecting a positive, supportive and safe learning and working environment for all its members. See General University Policies

Appeals

Depending on the nature of concern, the order in which you should normally try to resolve the matter is:

1. Me, the course instructor
2. the Associate Chair: econassoc@uvic.ca
3. the Associate Dean of Academic Advising
4. the Senate.

If you're seeking a formal review of an assigned grade, you should also consult the regulations in the academic calendar regarding review of an assigned grade."

Accessibility & Health Resources

Students with diverse learning styles and needs are welcome in this course. In particular, if you have a disability/health consideration that may require accommodations, you are free to approach me; however, you must register with the Centre for Accessible Learning (CAL) for formal arrangements to be made. The CAL staff are available by appointment to assess specific needs, provide referrals and arrange appropriate accommodations. The sooner you let us know your needs the quicker we can assist you in achieving your learning goals in this course.

Health Services - University Health Services (UHS) provides a full service primary health clinic for students, and coordinates healthy student and campus initiatives.

Counselling Services - Counselling Services can help you make the most of your university experience. They offer free professional, confidential, inclusive support to currently registered UVic students.

Elders' Voices - The Office of Indigenous Academic and Community Engagement (IACE) has the privilege of assembling a group of Elders from local communities to guide students, staff, faculty and administration in Indigenous ways of knowing and being.

Student Experience of Learning (SEL) Survey

I value your feedback on this course. Towards the end of term, you will have the opportunity to complete a confidential SEL survey regarding your learning experience. The survey is vital to providing feedback to me regarding the course and my teaching, as well as to help the department improve the overall program for students in the future.

Course Schedule

The tentative course structure and schedule is shown below. This is subject to change.

Topic 1: Temporal Dependence and Univariate Autoregressive (AR) Models

Topic 2: Multivariate Autoregressive Models

Topic 3: Unit Roots, Stochastic Trends, and Cointegration

Topic 4: Forecasting

Topic 5: Outliers and Structural Breaks

Topic 6: Exogeneity, Invariance, and Empirical Model Discovery

Topic 7: Local Projections

Due Dates:

- Midterm Exam: October 20th, 2025 (during class time)
- Forecast competition entry & report: November 6th, 4pm
- Final project presentation: during lecture hours on the final day(s) of the course. This will be confirmed depending on the number of students registered.
- Final written project: December 12th (as PDF via email, before 4pm Pacific time)
- Journal Article Presentations and Discussions: Weekly during class times.

All due dates and times refer to Pacific time.

Repeating Courses

According to the University of Victoria Calendar http://web.uvic.ca/calendar

"A student may not attempt a course a third time without the prior approval of the Dean of the Faculty and the Chair of the Department in which the course is offered unless the calendar course entry states that the course may be repeated for additional credit. A student who has not received this approval may be deregistered from the course at any point and may be asked to withdraw from his or her declared or intended program."

In order to request permission to attempt this course for the third time, you must follow the instructions provided under the link **Repeating Courses** at

http://www.uvic.ca/socialsciences/economics/undergraduate/home/course%20policies/index.php

Failure to obtain permission will result in deregistration from the course.

Reference Letters

Students in this course regularly request reference letters for graduate school or job applications. A generic letter, written by someone that knows you superficially, might work against you. Therefore, if you are considering asking me to provide a reference letter, please make sure that: you speak to me with sufficient notice; and have actively participated in class/office hours for me to provide a positive assessment of your performance and engagement with the material.

E-mail correspondence

Emails should be limited to critical matters, such as inability to attend an exam, or prolonged illness, and should include the course name and number in the subject line. Questions on course material should be asked during office hours or in class. I will not respond to emails that can be answered using the course syllabus. Please make sure to use a professional tone in your emails.