



School of Economics
Academic Year 2022-23 Term 2
PhD in Economics

ECON746 High Frequency Econometrics

Professor LI Jia
jjali@smu.edu.sg
+65 6828 0890
School of Economics, Level 5, Room 5058

COURSE DESCRIPTION

The course covers some topics on the frontier of high-frequency econometrics. Both theoretical and applied aspects will be discussed.

LEARNING OBJECTIVES

High-frequency techniques; applications.

PRE-REQUISITE/CO-REQUISITE/MUTUALLY EXCLUSIVE COURSES:

PhD Econometrics core courses

GRADED BASIS: Graded

COURSE UNIT: 1CU

COURSE AREA: ART

ASSESSMENT METHODS

(please add / delete components where appropriate)

Class Participation	: 20
Mid-term proposal	: 20
Final paper	: 60
Total	: 100%

CLASS TIMINGS

Tuesday 12pm-15:15

RECOMMENDED/REQUIRED TEXTS AND READINGS

Jacod and Protter: Discretization of Processes

Add additional components if required, e.g., software

Any computational software is fine.

WEEKLY LESSON PLAN

Week No	Topic	Readings
1	Ito semimartingales	JP book
2	Basic techniques	JP book
3	Spot volatility	Notes
4	Large-k Asymptotics	Notes
5	Fixed-k Asymptotics	Bollerslev, Li, Liao
6	Spot Regression	Bollerslev, Li, Ren
7	Realized Variance	Notes
8	Bipower and Truncation	Notes
9	Integrated volatility functionals	Jacod Rosenbaum
10	Candlesticks, simple estimator	Li, Wang, Zhang
11	Candlesticks, decision theoretic approach	Bollerslev, Li, Li
12	Optimality considerations	papers
	Exam	

ACADEMIC INTEGRITY

All acts of academic dishonesty (including, but not limited to, plagiarism, cheating, fabrication, facilitation of acts of academic dishonesty by others, unauthorized possession of exam questions, or tampering with the academic work of other students) are serious offences.

All work (whether oral or written) submitted for purposes of assessment must be the student's own work. Penalties for violation of the policy range from zero marks for the component assessment to expulsion, depending on the nature of the offense.

When in doubt, students should consult the instructors of the course. Details on the SMU Code of Academic Integrity may be accessed at <http://www.smuscd.org/resources.html>.

ACCESSIBILITY

SMU strives to make learning experiences accessible for all. If students anticipate or experience physical or academic barriers due to disability, please let the instructor know immediately. Students are also welcome to contact the university's disability services team if they have questions or concerns about academic provisions: included@smu.edu.sg.

Please be aware that the accessible tables in the seminar room should remain available for students who require them.

EMERGENCY PREPAREDNESS FOR TEACHING AND LEARNING (EPTL)

Where there is an emergency that makes it infeasible to have classes on campus, classes will be conducted online via WebEx or other online learning platforms, with no disruption to the schedule. To

familiarise students with the relevant platform, part of this course may be conducted online. The instructor will inform students of which classes, if any, will be conducted as part of this EPTL initiative.

ASSESSMENTS

Faculty have been instructed not to reuse questions verbatim from past year papers or published test banks, for the graded continuous assessments and examinations in this course.