EF4822: FINANCIAL ECONOMETRICS

Effective Term
Semester A 2022/23

Part I Course Overview

Course Title
Financial Econometrics

Subject Code
EF - Economics and Finance
Course Number
4822

Academic Unit
Economics and Finance (EF)

College/School
College of Business (CB)

Course Duration
One Semester

Credit Units
3

Level
B1, B2, B3, B4 - Bachelor's Degree

Medium of Instruction
English

Medium of Assessment
English

Prerequisites
EF3320 Security Analysis and Portfolio Management

Precursors
Nil

Equivalent Courses
Nil

Exclusive Courses
Nil

Part II Course Details

Abstract

This course aims to equip students with econometric methods to analyse financial time series in the respect of risk and return, and return predictability and portfolio allocation. Students are expected to gain practical experience in analysing financial and macroeconomic data.

Course Intended Learning Outcomes (CILOs)

	CILOs	Weighting (if app.)	DEC-A1	DEC-A2	DEC-A3
1	Apply econometric methods to analyse financial time series		x	x	x
2	Implement time-series return predictability regressions			x	x
3	Analyse portfolio allocation problems with risk assessment			x	x

A1: Attitude
Develop an attitude of discovery/innovation/creativity, as demonstrated by students possessing a strong sense of curiosity, asking questions actively, challenging assumptions or engaging in inquiry together with teachers.

A2: Ability
Develop the ability/skill needed to discover/innovate/create, as demonstrated by students possessing critical thinking skills to assess ideas, acquiring research skills, synthesizing knowledge across disciplines or applying academic knowledge to real-life problems.

A3: Accomplishments
Demonstrate accomplishment of discovery/innovation/creativity through producing /constructing creative works/new artefacts, effective solutions to real-life problems or new processes.

Teaching and Learning Activities (TLAs)

	TLAs	Brief Description	CILO No.	Hours/week (if applicable)
1	1	Lectures	1, 2, 3	3 hours per week
2	2	Project	1, 2, 3	

Assessment Tasks / Activities (ATs)

	ATs	CILO No.	Weighting (%)	Remarks (e.g. Parameter for GenAI use)
1	Assignments Assignments on basic statistics and R programming, and on application of R to financial time series analysis, including ARMA mdoels, capital asset pricing model, and portfolio allocation, demonstrating their understanding of the concepts of time series analysis and their ability to apply R programming to real financial time series analysis.	2	30	
2	Project One project on applying return predictability analysis to Hong Kong stock market with the use of R programming, demonstrating their skills to deal with data, analyse financial time series, and perform return predictability analysis.	2	20	

Continuous Assessment (%)

50

Examination (%)

50

Examination Duration (Hours)

2

Assessment Rubrics (AR)

Assessment Task

Assignments

Criterion

Analytical and programming skills

Excellent (A+, A, A-)

Demonstrate excellent knowledge in the subject, and a superior grasp of the critical issue and techniques

Good (B+, B, B-)

Demonstrate good knowledge in the subject, and a good grasp of the critical issue and techniques

Fair (C+, C, C-)
Demonstrate adequate knowledge in the subject, and adequate grasp of the critical issue and techniques

Marginal (D)
Demonstrate limited knowledge in the subject, and some idea of the critical issue and techniques

Failure (F)
Demonstrate poor knowledge in the subject, and no awareness of the critical issue and techniques

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Assessment Task
Projects

Criterion
Analytical, programming, and writing skills

Excellent (A+, A, A-)
Demonstrate excellent knowledge in the subject, and a superior grasp of the critical issue and techniques

Good (B+, B, B-)
Demonstrate good knowledge in the subject, and a good grasp of the critical issue and techniques

Fair (C+, C, C-)
Demonstrate adequate knowledge in the subject, and adequate grasp of the critical issue and techniques

Marginal (D)
Demonstrate limited knowledge in the subject, and some idea of the critical issue and techniques

Failure (F)
Demonstrate poor knowledge in the subject, and no awareness of the critical issue and techniques

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Assessment Task
Examination

Criterion
Analytical skills and knowledge about programming

Excellent (A+, A, A-)
Demonstrate excellent knowledge in the subject, and a superior grasp of the critical issue and techniques

Good (B+, B, B-)
Demonstrate good knowledge in the subject, and a good grasp of the critical issue and techniques

Fair (C+, C, C-)
Demonstrate adequate knowledge in the subject, and adequate grasp of the critical issue and techniques

Marginal (D)
Demonstrate limited knowledge in the subject, and some idea of the critical issue and techniques

Failure (F)
Demonstrate poor knowledge in the subject, and no awareness of the critical issue and techniques

Part III Other Information

Keyword Syllabus

1. Financial Time Series Analysis and its Applications
2. ARMA Models
3. Time-Series Return Predictability
4. Efficient Portfolios and Capital Asset Pricing Model
5. Portfolio Allocation and Risk Assessment

Reading List

Compulsory Readings

	Title
1	Robert H. Shumway, and David S. Stoffer, Time Series: A Data Analysis Approach Using R, Chapman and Hall/CRC, 2019. (Chapter 1, 2, 3, 4)
2	Jianqing Fan, and Qiwei Yao. The Elements of Financial Econometrics, Cambridge University Press, 2017. (Chapter 5, 7)

Additional Readings

	Title
1	Robert H. Shumway, and David S. Stoffer, Time Series Analysis and Its Applications: with R Examples, Springer, 2017.
2	Ruey S. Tsay, Analysis of Financial Time Series, John Wiley & Sons, New Jersey, 2010.
3	John Y. Campbell, Andrew W. Lo and A. Craig MacKinlay, The Econometrics of Financial Markets, Princeton University Press, 1997.