Master of Science in Quantitative Finance

COURSE CODE: **QF600**
COURSE TITLE: **Asset Pricing**

Instructor : Dr Wang Wei Mun
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PRE-REQUISITE/CO-REQUISITE/MUTUALLY EXCLUSIVE COURSE(S)
None

COURSE AREA
Quantitative Finance

GRADING BASIS
Graded

COURSE UNIT
1 CU

FIRST OFFERING TERM
Academic Year: AY2023-24
Academic Term: Term 1

COURSE DESCRIPTION
This course will examine the theoretical foundations of modern financial economics, with emphasis on asset pricing and portfolio choice. The course will cover topics such as expected utility theory, mean-variance analysis, linear factor models, stochastic discount factor, behavioural finance, and state prices in complete markets. Homework assignments will focus on numerical applications rather than derivations, and will make extensive use of numerical programming.

LEARNING OBJECTIVES
On successful completion of the course, students should understand:

- Foundations of expected utility theory
- Asset allocation based on mean-variance analysis
- Asset pricing using linear factor models
- Extended models of the efficient frontier
- Static and dynamic asset pricing using stochastic discount factor
- Effect of investor irrationality on asset pricing
- Asset pricing using state prices in complete markets

ASSESSMENT METHODS

Class Participation:	10%
Homework Assignments:	30%
Final Examination:	60%
Total:	**100%**

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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 presented in class must be the student's own work. Any student caught violating this policy may result in the student receiving zero marks for the component assessment or a fail grade for the course. This policy applies to all works (whether oral or written) submitted for purposes of assessment.

When in doubt, students are encouraged to 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 you anticipate or experience physical or academic barriers due to disability, please let me know immediately. You are also welcome to contact the university's disability services team if you have questions or concerns about academic provisions: included@smu.edu.sg.

Please be aware that the accessible tables in our 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 Zoom, with no disruption to the schedule. To familiarise students with the Zoom 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.

INSTRUCTIONAL METHODS AND EXPECTATIONS
Attendance and Class Participation
You are encouraged to read up on the relevant topic before each class, and to speak up if you have any questions during class. You will earn marks for class participation if you ask questions during class, or otherwise provide relevant input.

Homework Assignments
There will be regular homework assignments that focus on numerical applications pertaining to the material covered in the lectures. You can complete the assignments using any programming language of your choice, although Python is recommended if you have no prior programming experience. You may discuss the assignments with your classmates, but each student must submit a completed assignment (on eLearn).

Final Exam
There will be a two-hour exam at the end of the course. This exam will focus on numerical applications pertaining to the material covered in the lectures, similar to the homework assignments. You will have access to all of the programming code that was used for the homework assignments. As such, you will be required to bring a laptop computer for the exam.

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RECOMMENDED TEXT AND READINGS

The lecture notes are largely based on *Theory of Asset Pricing* by George Pennacchi, Pearson Education, 2008, which provides an introduction to post-graduate-level theory of finance. You may also wish to refer to *Financial Decisions and Markets* by John Campbell, Princeton University Press, 2018, which provides a more recent and comprehensive discussion of asset pricing.

WEEKLY LESSON PLANS

Session	Topic
1	Expected Utility Theory
2	Efficient Frontier*
3	Capital Asset Pricing Model*
4	Linear Factor Models*
5	Efficient Frontier Revisited*
6	Stochastic Discount Factor*
7	Multi-Period Asset Pricing
8	Behavioural Finance*
9	State Prices in Complete Markets
10	Stock Valuation

*There will be a homework assignment pertaining to this topic.