

**THE UNIVERSITY OF HONG KONG  
FACULTY OF BUSINESS AND ECONOMICS**

**PhD Course Syllabus**

**Course Code/Title:** FINA6016 Asset Pricing Theory

**Course Description:** This course is an introductory PhD level course on the basic theories of asset pricing. It consists of two parts. First, students acquire necessary technical skills about probability theory, stochastic calculus, the fundamental theorem of asset pricing (FTAP), basic applications of the FTAP, dynamic programming, and the capital asset pricing model. Second, students learn about some important empirical facts and why they are puzzling in the baseline Lucas tree model. In addition, students learn about a selection of models to address these issues and puzzles. This selection covers long run risk, habit, rare disasters, heterogeneity, investment, and incomplete information.

**Course Objectives:** This course is a research-oriented course and is designed for research post-graduate students to prepare for PhD-level research. There are two main objectives:

1. Provide students with an understanding of the main issues and puzzles in asset pricing.
2. Equip students with basic skills to understand and design models to explain empirical facts.

**Pre-requisite:** PhD level Microeconomics, Macroeconomics, Econometrics (ECON 6011, 6012, 6005)

**Assessment:** 100% coursework

**Remarks:** All PhD courses are non-credit-bearing and will be assessed on a pass/fail basis.

Course Learning Outcomes (CLOs) On completion of this course, students should be able to:	Aligned PLOs*				
	1	2	3	4	5
1. Use technical skills to understand and design discrete and continuous time models	X				
2. Understand important questions and how models help to answer these questions	X	X			X
3. Have an in-depth understanding of a selection of important models in the literature	X	X			
4. Critically assess asset pricing theory papers	X	X	X		X
5. Efficiently communicate intuition, key components, and implications of theory models	X			X	

**\*Programme Learning Outcomes (PLOs) for Research Postgraduate Programme:**

1. Demonstrate critical understanding, at an advanced level, of up-to-date knowledge and research methodology of a particular field
2. Implement effective academic and personal strategies for carrying out research projects independently and ethically

3. Contribute original knowledge in response to issues in their specialist area
4. Communicate research findings at a diverse range of levels and through a variety of media
5. Evaluate one's own research in relation to important and latest issues in the field

### COURSE DETAILS *(tentative/subject to change)*

**Year/Semester:** 2024/Spring

**Time:** Monday, 1.30pm-4.30pm: Jan 15, 22; Mar 11, 18, 25; Apr 8, 15, 22  
Friday, 2.30pm-5.30pm: Mar 22, 29; Apr 12, 19

**Room:** KKL 1119

**Instructor:** **Thomas A. Maurer**  
Email: [maurer@hku.hk](mailto:maurer@hku.hk)  
Office: KKL-837 (by appointment)

### I. Teaching and Learning Activities

In-class and Out-of-class Activities <i>(e.g. lectures, class discussion, papers reading, proposal writing)</i>	Expected hour	% of student study effort
1. Lectures	36	25%
2. Reading notes and papers	54	37.5%
3. Assignments	54	37.5%
Total	144	100%

### II. Assessment

Assessment Components <i>(e.g. assignments, proposal, presentation, examination)</i>	Weight	CLOs to be assessed				
		1	2	3	4	5
1. Problem Sets (due by May 26, 11.59pm)	30%	X				
2. Report (due by May 26, 11.59pm)	70%	X	X	X	X	X
Total	100%					

**Problem Sets:** There are problem set questions related to chapters 1-6. Students have to submit answers to the problem sets in form of a tex file (including all related files to compile it) as well as the compiled pdf file.

**Report:** Students have to write a report based on a paper from the list [P1] to [P20]. On request the instructor may permit other suitable papers.

The report is a summary (7-10 pages), and a critical assessment of the benefits/contribution and pitfalls (3-5 pages) of the paper. The summary should have a short introduction with an

intuitive explanation of the economic mechanism (1-2 pages), detail model derivation, and description of the calibration (method & results).

The report has to be submitted in form of tex files (including all related files to compile them) as well as the compiled pdf file.

**Students will be assessed based on the following performance standards:**

Course Grade	Performance Standard
Pass	Well prepared, able to apply technical skills in problem sets, demonstrate good understanding of key issues in asset pricing theory, demonstrate understanding of how models can address puzzles, be aware of strengths and weakness of various models, insightful and well-written report, clear and well-structured presentation.
Fail	Unable to solve many assignment questions, little evidence of understanding important questions in asset pricing, unable to describe important models and intuition, poorly written and uninformative report, unclear and uninformative presentation.

**III. Course Content and Tentative Schedule**

**Class** Topics:

- 1, 2: 1. Basics of Probability Theory and Stochastic Calculus (B1, pp. 1-26)
- 3, 4: 2. The Fundamental Theorem of Asset Pricing in Discrete Time (B1, pp. 27-66)
- 5, 6: 3. The Fundamental Theorem of Asset Pricing in Continuous Time (B1, pp. 67-110)
- 7: 4. Basics of Dynamic Programming (B1, pp. 111-128)
- 8: 5. Capital Asset Pricing Models (B1, pp. 129-138; **P15**)
- 9: 6. Empirical Facts and Puzzles (B1, pp. 139-150)
- 10: Long Run Risk (**P2**)  
Habit Formation (**P6, P7, P1**)  
Rare Disasters (**P3, P19**)
- 11: Incomplete Information and Learning (R2; **P5, P18, P12, P16**)  
Heterogeneous Agents (R3; **P4, P8, P9**)
- 12: Technological Innovation and Capital Accumulation (R1; **P17, P13**)  
Asymmetric Information (B2; **P10, P11, P14, P20**)

**IV. Required/Recommended Readings**

**Lecture Notes:** electronic copy will be provided before class.

**Books/Notes:**

*Required:*

[B1] Leonid Kogan, Lecture Notes, MIT, 2011, pp. 1-150.

[B2] Vayanos, Dimitri and Jiang Wang, Lecture Notes, LSE, 2005.

### *Optional:*

- [B3] Shreve, Steven E. *Stochastic Calculus Models for Finance II: Continuous-Time Models*, Springer-Verlag New York, LLC, 2004.
- [B4] Cochrane, John H. *Pricing*, Princeton University Press, 2005, Chapter 21.
- [B5] Campbell, John Y. 2003, "Consumption-Based Asset Pricing", in George Constantinides, Milton Harris, and Rene Stulz eds., *Handbook of the Economics of Finance*, North-Holland.

### **Review Articles:**

- [R1] Kogan, Leonid and Dimitris Papanikolaou, 2019, "Technological Innovation, Intangible Capital, and Asset Price", *Annual Review of Financial Economics*, 11: 221-242.
- [R2] Pastor, Lubos and Pietro Veronesi, 2009, "Learning in Financial Markets", *Annual Review of Financial Economics*, 1: 361-381.
- [R3] Panageas, Stavros, 2020, "The Implications of Heterogeneity and Inequality for Asset Pricing", *Foundations and Trends in Finance*, 12 (3): 199-275.

### **Models:**

- [P1] Albuquerque, Rui, Martin Eichenbaum, Victor Luo and Sergio Rebelo, 2016, "Valuation Risk and Asset Pricing", *Journal of Finance*, 71 (6): 2861-2904.
- [P2] Bansal, Ravi and Amir Yaron, 2004, "Risks for the Long Run: A Potential Resolution of Asset Pricing Puzzles", *Journal of Finance*, 59: 1481-1509.
- [P3] Barro, Robert, 2006, "Rare Disasters and Asset Markets in the Twentieth Century", *Quarterly Journal of Economics*, 121: 823-866.
- [P4] Basak, Suleyman and Domenico Cuoco, 1998, "An Equilibrium Model with Restricted Stock Market Participation", *Review of Financial Studies*, 11: 309-341.
- [P5] Brennan, Michael J. and Yihong Xia, 2001, "Stock price volatility and equity premium", *Journal of Monetary Economics*, 47: 249-283.
- [P6] Campbell, John Y. and John H. Cochrane, 1999, "By Force of Habit: A Consumption-Based Explanation of Aggregate Stock Market Behavior", *Journal of Political Economy*, 107: 205-251.
- [P7] Chan, Yeung L. and Leonid Kogan, 2002, "Catching Up with The Joneses: Heterogeneous Preferences and the Dynamics of Asset Prices", *Journal of Political Economy*, 110 (6): 1255-1285.
- [P8] Gârleanu, Nicolae and Stavros Panageas, 2015, "Young, old, conservative, and bold: The implications of heterogeneity and finite lives for asset pricing", *Journal of Political Economy*, 123 (3): 670-685.
- [P9] Gârleanu, Nicolae and Stavros Panageas, 2019, "Heterogeneity and asset prices: A different approach", Working Paper.
- [P10] Grossman, Sanford and Joseph Stiglitz, 1980, "On the Impossibility of Informationally Efficient Markets", *American Economic Review*, 70: 393-408.
- [P11] Glosten, Lawrence and Paul Milgrom, 1985, "Bid, Ask, and Transaction Prices in a Specialist Market with Heterogeneously Informed Traders", *Journal of Financial Economics*, 13: 71-100.
- [P12] Collin-Dufresne, Pierre, Michael Johannes and Lars Lochstoer, 2016, "Parameter Learning in General Equilibrium: The Asset Pricing Implications", *American Economic Review*, 106 (3): 664-698.
- [P13] Kaltenbrunner, Georg and Lars Lochstoer, 2010, "Long-Run Risk through Consumption Smoothing", *Review of Financial Studies*, 23: 3141-3189.
- [P14] Kyle, Albert, 1985, "Continuous Auctions and Insider Trading", *Econometrica*, 53: 1315-1335.
- [P15] Merton, Robert, 1973, "An Intertemporal Capital Asset Pricing Model", *Econometrica*, 41: 867-888.

- [P16] Pakoš, Michal, 2013, "Long-run risk and hidden growth persistence", *Journal of Economic Dynamics & Control*, 37 (9):1911-1928.
- [P17] Papanikolaou, Dimitris, 2011, "Investment Shocks and Asset Prices", *Journal of Political Economy*, 119 (4): 639-685.
- [P18] Veronesi, Pietro, 2004, "The Peso problem hypothesis and stock market returns", *Journal of Economic Dynamics & Control*, 28: 707-725.
- [P19] Wachter, Jessica A. 2013, "Can Time-Varying Risk of Rare Disasters Explain Aggregate Stock Market Volatility?", *Journal of Finance* 68 (3): 987-1035.
- [P20] Wang, Jiang, 1994, "A Model of Competitive Stock Trading Volume", *Journal of Political Economy* 102: 127-168.

## V. Course Policy

**The University Regulations on academic dishonesty will be strictly enforced!** Academic dishonesty is behaviour in which a deliberately fraudulent misrepresentation is employed in an attempt to gain undeserved intellectual credit, either for oneself or for another. It includes, but is not necessarily limited to, the following types of cases:

- a. Plagiarism - The representation of someone else's ideas as if they are their own. Where the arguments, data, designs, etc., of someone else are being used in a paper, report, oral presentation, or similar academic project, this fact must be made explicitly clear by citing the appropriate references. The references must fully indicate the extent to which any parts of the project are not one's own work. Paraphrasing of someone else's ideas is still using someone else's ideas, and must be acknowledged. Please check the University Statement on plagiarism on the web: <http://www.hku.hk/plagiarism/>
- b. Unauthorized Collaboration on Out-of-Class Projects - The representation of work as solely one's own when in fact it is the result of a joint effort.
- c. Cheating on In-Class Exams - The covert gathering of information from other students, the use of unauthorized notes, unauthorized aids, etc.
- d. Unauthorized Advance Access to an Exam - The representation of materials prepared at leisure, as a result of unauthorized advance access (however obtained), as if it were prepared under the rigors of the exam setting. This misrepresentation is dishonest in itself even if there are not compounding factors, such as unauthorized uses of books or notes.

You are expected to do your own work whenever you are supposed to. Incident(s) of academic dishonesty will NOT be tolerated. Cheating or plagiarism of any kind would result in an automatic FAIL grade for the course plus strict enforcement of all Faculty and/or University regulations regarding such behaviour.