



北京大學
汇丰商学院

Peking University HSBC Business School

FIN 531

Market Microstructure

Module IV, 2016-2017

Course Information

Instructor:

Office: PHBS Building, Room 745

Phone: +86 (755) 2603-5295

Email: kimds@phbs.pku.edu.cn

Office Hour: Monday and Thursday, 09:00-10:00

Teaching Assistant:

Phone:

Email:

Classes:

Lectures: Monday and Thursday, 13:30-15:20

Venue: PHBS Building, Room 331

Course Website:

<http://www.danskim.com>

1. Course Description

1.1 Context

Course overview:

Welcome to Market Microstructure at Peking University HSBC Business School! For simplicity, most finance courses assume that securities trade in an idealized costless, frictionless world. In reality there are many frictions: bid-ask spreads, trade impact on price, brokerage commissions, quantity limitations, time delays, etc. This field of study is known as "market microstructure." Microstructure has grown rapidly into one of the largest sub-disciplines of finance and has had a profound impact on the real world. For example, one research study uncovered evidence of implicit collusion by NASDAQ dealers. This led to a class action lawsuit that was eventually settled when 30 brokerage firms paid a total of \$1 billion in damages!

Prerequisites:

N/A

1.2 Textbooks and Reading Materials

Textbooks

Market Microstructure in Practice, by Charles-Albert Lehalle and Sophie Laruelle (LL)

Algorithmic and High-Frequency Trading by Álvaro Cartea, Sebastian Jaimungal, and José Penalva (CJP)

Algorithmic Trading & DMA by Johnson, 4Myeloma Press

Other Readings

Lecture notes, assignments, and other useful information will be posted on the course web page at <http://www.danskim.com/mm.html>. **You are expected to download and print the required material before coming to the class.**

2. Learning Outcomes

2.1 Intended Learning Outcomes

Learning Goals	Objectives	Assessment
1. Our graduates will be effective communicators.	1.1. Our students will produce quality business and research-oriented documents.	√
	1.2. Students are able to professionally present their ideas and also logically explain and defend their argument.	√
2. Our graduates will be skilled in team work and leadership.	2.1. Students will be able to lead and participate in group for projects, discussion, and presentation.	√
	2.2. Students will be able to apply leadership theories and related skills.	
3. Our graduates will be trained in ethics.	3.1. In a case setting, students will use appropriate techniques to analyze business problems and identify the ethical aspects, provide a solution and defend it.	
	3.2. Our students will practice ethics in the duration of the program.	
4. Our graduates will have a global perspective.	4.1. Students will have an international exposure.	√
5. Our graduates will be skilled in problem-solving and critical thinking.	5.1. Our students will have a good understanding of fundamental theories in their fields.	√
	5.2. Our students will be prepared to face problems in various business settings and find solutions.	√
	5.3. Our students will demonstrate competency in critical thinking.	√

2.2 Course specific objectives

- Understand how financial markets are organized
- Analyze trade and quotes information
- Understand the role of informed trading
- Understand how financial markets are evolving

2.3 Assessment/Grading Details

Assessment task	Weighting
Projects	20%
Final project	20%
In-class assignments	10%
Participation	10%

Mid-term Exam	40%
Total	100%

2.4 Academic Honesty and Plagiarism

It is important for a student's effort and credit to be recognized through class assessment. Credits earned for a student work due to efforts done by others are clearly unfair. Deliberate dishonesty is considered academic misconducts, which include plagiarism; cheating on assignments or examinations; engaging in unauthorized collaboration on academic work; taking, acquiring, or using test materials without faculty permission; submitting false or incomplete records of academic achievement; acting alone or in cooperation with another to falsify records or to obtain dishonestly grades, honors, awards, or professional endorsement; or altering, forging, or misusing a University academic record; or fabricating or falsifying of data, research procedures, or data analysis.

All assessments are subject to academic misconduct check. Misconduct check may include reproducing the assessment, providing a copy to another member of faculty, and/or communicate a copy of this assignment to the PHBS Discipline Committee. A suspected plagiarized document/assignment submitted to a plagiarism checking service may be kept in its database for future reference purpose.

Where violation is suspected, penalties will be implemented. The penalties for academic misconduct may include: deduction of honour points, a mark of zero on the assessment, a fail grade for the whole course, and reference of the matter to the Peking University Registrar.

For more information of plagiarism, please refer to *PHBS Student Handbook*.

3. Topics, Teaching and Assessment Schedule

<i>Class Number</i>	<i>Topics Covered</i>	<i>Notes</i>
1 (Apr 27)	<u>Introduction</u> <ul style="list-style-type: none"> • Discussion of syllabus • Introduction to Market microstructure • SAS • Lecture note 01 	
2 (May 3)	<u>Overview of basic concepts</u> <ul style="list-style-type: none"> • Lecture note 02 • LL Introduction • CJP Chapter 2 • Johnson, Chapter 2 • Live Exercise: 7EX Trading Simulation 	
3 (May 4)	<u>More of basic concepts</u> <ul style="list-style-type: none"> • Lecture note 03 • LL Introduction • CJP Chapter 2 • Johnson, Chapter 2 <u>World markets</u> <ul style="list-style-type: none"> • Lecture note 03 • LL 1.2 • Johnson, Chapter 3 • Live Exercise: 7EX Trading Simulation 	
4 (May 8)	<u>Orders</u> <ul style="list-style-type: none"> • Lecture note 04 • LL 1.2 • CJP Chapter 1 • Johnson, Sections 4.1-4.4 <u>Limit Order Book vs. Call Markets</u> <ul style="list-style-type: none"> • Live Exercise: LOB and Call Markets 	<u>Discuss TAQ Project</u>
5 (May 11)	<u>Algorithmic trading</u> <ul style="list-style-type: none"> • Lecture note 05 • LL 3.3 • CJP Chapter 6, 7 • Johnson, Sections 5.1-5.2, 5.4-5.6 <u>Transaction costs</u> <ul style="list-style-type: none"> • LL 2.2, 3.2 • Johnson, Chapter 6 • Live Exercise: Transaction Cost Measures 	<u>Submit TAQ project</u>
6 (May 15)	<u>Optimal trading strategies</u> <ul style="list-style-type: none"> • Lecture note 06 • LL 3.3 	

<i>Class Number</i>	<i>Topics Covered</i>	<i>Notes</i>
	<ul style="list-style-type: none"> • Johnson, Sections 7.1-7.5 • Live Exercise: Implementation Shortfall Components <p><u>Order placements</u></p> <ul style="list-style-type: none"> • Johnson, Sections 8.1-8.4 	
7 (May 18)	<p><u>Execution Tactics and Low-Latency Trading</u></p> <ul style="list-style-type: none"> • Lecture note 07 • LL 1.4 • Hasbrouck and Saar, pages; 646-649, 653, 655-657, 674 <p><u>Market Manipulation and Insider Trading</u></p> <ul style="list-style-type: none"> • Video: <i>Next: The Future Just Happened</i> • Lebed Posting • Bhattacharya, Daouk, Jorgenson, and Kehr (2000), pages 69-70,73-74, 82-83, 93 • Bhattacharya and Daouk, pages 75, 80-84, 89, 92-93 	
8 (May 22)	<p><u>Bid-Ask Spreads</u></p> <ul style="list-style-type: none"> • Lecture note 06 <p><u>Probability of informed trading (PIN)</u></p> <ul style="list-style-type: none"> • Easley, Kiefer, O'Hara and Paperman, pages 1405-1410, 1418, 1421 • PIN Sampler (Vega; Agudelo; Easley, Engle, O'Hara, and Wu; Easley, de Prado, and O'Hara) • Excel: PIN Model Estimation, PIN Model Dynamics 	
9 (May 24)	<p><u>Brokers and Options</u></p> <ul style="list-style-type: none"> • Lecture note 09 • Video: <i>Floored</i> • Harris, pages 139-142, 151-152, 159-167 • Harris, Hillary Clinton's Futures Trading Profits • Clinton, Living History, pages 86-87 • Battalio, Corwin, and Jennings, pages 1-5, 37, 50-52 • Battalio, Hatch, and Jennings, pages 933-936, 944-945, 948-949, 952-953, 955 	
10 (May 25)	<p><u>Short Selling</u></p> <ul style="list-style-type: none"> • Lecture note 10 • "Nasty, brutish and short," The Economist • "Taxing the Speculators," New York Times 	

<i>Class Number</i>	<i>Topics Covered</i>	<i>Notes</i>
	<ul style="list-style-type: none"> • "A Transaction Tax Would Hurt All Investors," Wall Street Journal • "EU proposes 0.1 percent financial transaction tax," Reuters • Beber and Pagano, pages 343-345, 352-354, 356, 358-359, 371 	
	<u>Arbitrageurs and informed traders</u> <ul style="list-style-type: none"> • Harris, Lecture 13 Arbitrage, pages 1-5 • Gagnon and Karolyi, page 60 • Gatev, Goetzmann, and Rouwenhorst, pages 797-799, 803-804, 807, 809, 812, 817 • Bowen, Hutchinson, and Sullivan, pages 31-35 • Harris, pages 226-229, 235 • CJP Chapter 11 	
11 (Jun 1)	<u>Ghost Exchange</u> <ul style="list-style-type: none"> • Video: <i>Ghost Exchange</i> 	
	CASE PROJECT DUE	
(Jun 5)	MIDTERM	
12 (Jun 8)	<u>Day traders</u> <ul style="list-style-type: none"> • Lecture note 12 • Video: <i>Risky Business: The Day Traders</i> • "What it takes to trade," CNN Money • "What the regulators say," CNN Money • "Day trader decries new rule," CNN Money • NASAA Report, pages 1, 9-13, 44-46 • "Gambling Man," Wall Street Journal Article • Barber and Odean, pages 773-776 	
	<u>High frequency trading</u> <ul style="list-style-type: none"> • Video: <i>Flash boys</i> • LL 2.3 • CJP Chapter 8, 9 • Holden, Jacobsen, and Subrahmanyam, pages 308-318 	
	<u>Discuss midterm results</u>	
13 (Jun 12)	<u>Crashes</u> <ul style="list-style-type: none"> • Lecture note 13 • "Stocks Plunge As Rescue Plan Fails To Gain House Approval," Wall Street Journal • Roll, pages 19-26 • Shiller, Irrational Exuberance, pages 82-95 • "Repeating the 1920s?" Wall Street Journal 	

<i>Class Number</i>	<i>Topics Covered</i>	<i>Notes</i>
	<ul style="list-style-type: none"> • “Market at a Crossroads,” Wall Street Journal • “Time To Stand Tight,” Wall Street Journal • Joint Preliminary Report on the Flash Crash, pages 11-15, 35, 46, 51, 54 Joint Final Report on the Flash Crash, pages 1-8, 19-22, 24-26, 30, 33, 61, 88, 90, 94, 98, 100	
14 (Jun 15)	<u>Deception and bias</u> <ul style="list-style-type: none"> • Lecture note 14 • Hanke and Hauser, pages 57-66, 76, 81-82 • Bhattacharya, Holden, and Jacobsen, pages 1-3, 7-10, 14-15 • Grinblatt and Keloharju, pages 549-556, 569, 574 <u>Transparency and individual investors</u> <ul style="list-style-type: none"> • Bessembinder, Maxwell, and Venkataraman, pages 251-254, 268-269 • Edwards, Harris, and Piwowar, pages 1421-1423, 1437, 1441 • Barber and Odean, pages 785-788, 797, 799-800, 802, 804 • Bloomfield, O’Hara, and Saar, pages 2275-2283, 2286, 2288, 2293, 2295, 2297 • Barber, Lee, Liu, and Odean, pages 609-611, 614-615, 619, 621 	
15 (Jun 19)	<u>Competing by Cross-Listing and innovating</u> <ul style="list-style-type: none"> • PowerPoint: Lecture 16 • Doidge, Karolyi, and Stulz, pages 253-259, 267 • Moulton and Wei, pages 570-572, 575, 580, 587-588 • Fernandes and Ferreira, pages 216-218, 231-233 • Kavajecz and Keim, pages 465-472, 478, 480, 487 • Boehmer, Saar, and Yu, pages 783-787, 791, 793, 795, 801-802, 805-806 • Barclay and Hendershott #1, pages 1041, 1044-1045, 1047-1048, 1053 • Barclay and Hendershott#2, page 689 FINAL PROJECT DUE	
(Jun 25) 13:30-17:20	Group Presentations MANDATORY ATTENDANCE DAY	