

Spring 2019: MTH 9879 Market Microstructure Models

Course Policy

Instructor:

Jim Gatheral, VC 6-235, (646) 312-4134, jim.gatheral@baruch.cuny.edu.

Office hours:

Thursdays 2–4 p.m. and by appointment.

Teaching assistants:

Victor Istratov (stavka@gmail.com) and Yassine Ghalem (yassine.ghalem@gmail.com).

Time and location:

Thursday 6:05–9:00 p.m., VC 9-140.

Prerequisites:

MTH 9814: Introduction to Pricing Financial Instruments.

Required textbooks:

- *Trades, Quotes and Prices: Financial Markets Under the Microscope* by Jean-Philippe Bouchaud, Julius Bonart, Jonathan Donier, and Martin Gould, Cambridge University Press, 2018.
- *Market Liquidity: Theory, Evidence, and Policy* by Thierry Foucault, Marco Pagano and Ailsa Röell, Oxford University Press, 2013.
- *Empirical Market Microstructure* by Joel Hasbrouck, Oxford University Press, 2007.

Recommended books:

- *Trading and Exchanges* by Larry Harris, Oxford University Press, 2003.
- *Theory of Financial Risk and Derivative Pricing: From Statistical Physics to Risk Management* by Jean-Philippe Bouchaud and Marc Potters, Cambridge University Press, 2003.
- *Statistical Analysis of Financial Data in R* by René Carmona, Springer, 2014.
- *Algorithmic and High-Frequency Trading* by Álvaro Cartea, Sebastian Jaimungal and José Penalva, Cambridge University Press, 2015.

For reference

- *Market Microstructure Theory* by Maureen O'Hara, Wiley, 1998.

Organization

Students are expected to arrive on time for the beginning of each class. In accordance with the policy of Baruch College, anybody who is absent more than 4 times will receive a grade of WU, which is equivalent to a grade of F.

Homework will be assigned most Thursdays and will be posted on the course Baruch MFE forum page. Typically, homework will be due in two weeks from the date of assignment. You are encouraged to discuss homeworks with other students through the MTH9879 Baruch MFE Forum. Alternatively, you can use my office hours to get help with the homework and may also email me, Victor or Yassine with short questions. Unless prior arrangements have been made, late homeworks will not be accepted. There will be no makeup if the final examination is missed.

The use of cell phones, beepers, and pagers is strictly prohibited during class. Please switch them off before entering the classroom.

Study groups

You are encouraged to discuss homework problems with other students in your class. Yet there will be no homework groups; you should write solutions on your own without consulting others' work (see the Academic Honesty section below).

Academic Honesty

I fully support Baruch College's policy on Academic Honesty, which states, in part:

Academic dishonesty is unacceptable and will not be tolerated. Cheating, forgery, plagiarism and collusion in dishonest acts undermine the college's educational mission and the students' personal and intellectual growth. Baruch students are expected to bear individual responsibility for their work, to learn the rules and definitions that underlie the practice of academic integrity, and to uphold its ideals. Ignorance of the rules is not an acceptable excuse for disobeying them. Any student who attempts to compromise or devalue the academic process will be sanctioned.

You are encouraged to discuss the course material and homework assignments with your fellow students. Each assignment must however be written and completed by each individual on his or her own; should two homework submissions be found to be close to identical, both submissions will receive a score of zero. Plagiarism and related forms of unreferenced "borrowing" of written material will not be tolerated. Finally, textbooks, notes, and any other written materials should not be used during the exams unless otherwise noted.

Grading

There will be roughly weekly homework assignments and a final examination. 10% of your final grade will be based on your class participation, 45% of your final grade will be from the homework assignments and the remaining 45% from the final examination.

Exam schedule

The final examination is tentatively scheduled for Thursday May 16, 2018 from 6:00-8:00 p.m., VC 9-140.