B9330 Market Microstructure Theory
Professor Jane Li
Syllabus -- Spring, 2024

Instructor Details

Professor Jane Li

Office hours: by appointment

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I. Course Description

Market microstructure is the study, both theoretically and empirically of price determination at high frequency in a security market. Such a study includes the nature of quotes, orders and how transactions evolve. The focus of this course is the set of a relatively few number of standard theoretical models in the area. We will discuss both the equity market as well as the fixed income market. The trading protocol of fixed income market has gone through significant changes in the past few years. The course starts with a discussion of the way markets work and their rules. This will form the basis for analyzing the realism of various models. We then work through the models and their variants in order to understand their key contributions and empirical implications, as well as their implications for regulations. We will also discuss how to connect the recent development in demand based asset pricing with the theoretical models.

Topics Summary

1. Introduction and overview
2. Rational expectation equilibrium
3. Asymmetric information
4. Strategic agents
5. Over-the-counter market and search models
6. Segmented market and constrained arbitrageurs
7. Empirical measures of liquidity

II. Course Materials

Class Notes – I will post PDFs of lecture notes and other reading materials on Canvas. Students download, view, and mark up lectures on their (CBS) tablets or other e-devices.

Beyond the lecture notes, **supplementary readings** are available on Canvas, including articles from industry, academia, and the media that relate to key lecture topics.

III. Course Administration

Finance and Economics Division: Michelle Zern mz2492@gsb.columbia.edu

Teaching assistants: Jerry Hua JHua24@gsb.columbia.edu

IV. Grading

Students' course grades are based on applying the standard CBS grading distribution to overall course scores. The CBS grading curve applies only to the overall course score, not to individual assignments. The six components of the overall course score appear below:

- 15% Problem set
- 20% Group presentation
- 55% Final exam
- 10% Class participation

Problem set – There will be one assignment. You may work on it in groups, but each submission is individual.

Group presentation – I will provide a reading list at the beginning of the course of recent academic papers. Students should form groups of 3-5 members, pick a paper that is interesting to you and present the paper to the rest of the class. Each presentation lasts 20-30min.

Final exam – The final will be a timed 2-hour exam. The exam can be taken virtually any time between Mar 4th – Mar 6th. During exam period, students who have taken the exam must not discuss the exam with other students who have not yet taken the exam. The CBS Honor Code applies.

Class Participation – You will gain points by regularly attending class, being prepared, answering questions, asking questions, and generally by providing positive externalities to the other members of the class. You lose points by not coming to class, not participating in the class, not being prepared, and particularly by distracting or disruptive behavior.

V. Guest Speaker

We may have a guest speaker from the industry to talk about real-world applications of the concepts we study in class. Details will be confirmed.