

FIN 539 MATHEMATICAL FINANCE

Lecture 0: Course Overview

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This course is intended for MSFQ students and other students who are interested in knowing about continuous-time models of investments in finance. The pre-requisites are FIN 524 (Options and Futures) and FIN 538 (Stochastic Foundations for Finance), or permission of the instructor.

If you don't have the pre-requisites yet and you need my permission, come talk to me sooner rather than later. (:

Topics

The course takes the decision-theoretic approach to choice problems. Decision theory is good for thinking about choices conceptually and includes techniques for solving problems.

- Basics of decision theory
- Formulation of continuous-time investment problems
- Solving dynamic programs using the Bellman equation
- Solving problems using the one-shot approach
- Equilibrium models

TA support

We are fortunate to have help from two outstanding TAs. At least one will be available to respond to questions in chat during each class session. And, they will run weekly help sessions focused on problem-solving.



Jiaen Li



Avantika Pal

Structure

- Mini (half-semester) course
- lecture format
 - mostly on a virtual whiteboard (good for technical material)
 - “slides” for review
- in class / synchronous online / asynchronous online
 - varies by section
 - may change based on demand or school policy
- single final exam, tentative format has two parts:
 - in-class written exam
 - short oral exam
- TA-conducted help sessions: focus on solving problems
- practice problems with solutions to help you to review

During class: basics

- If you are present in person:
 - Bring your laptop so classmates can see each other
 - Join without sound and microphone off
 - Video on
 - If you must come late or leave early, do not disrupt the class
- If you are watching in real time online:
 - Keep your video on and add -ONL to your name
 - Keep your microphone off unless you are talking
 - Turn on your microphone when you talk
- “Best efforts”

During class: rules of engagement

- responsible chat
 - questions (for TAs and classmates)
 - discussions of the material
 - social chats *in moderation*
- Use the microphone *in moderation* giving your name first
 - an important mistake in an equation
 - Zoom/technical problems at my end
 - big confusion not resolved in the chat

Homeworks and Exams

- Homeworks:
 - Not graded
 - You can ask for help from anyone
 - Answers are provided
- Exam: entirely your own work, closed book

Cautions

- “Laissez faire” class: you are adults
- Avoid distractions
 - e-mail, 微信 (WeChat), phone calls, etc.
 - too much social chatting in Zoom
 - talking with your roommate
- Work hard on homeworks
 - before looking at the answer sheet
 - before going to the help session
- Please, no academic integrity violations
 - I won't like it.
 - You won't like it.

More information

Read the syllabus!

It is located on the canvas site and is also available at:

<http://dybfin.wustl.edu/teaching/mathfin21-3/syllmathfin.html>

Course materials such as homeworks and slides can be found at

<http://dybfin.wustl.edu/teaching/mathfin21-3/index.html>

which is also linked from the canvas page

The canvas page will also contain links to Zoom recordings of the class and TA sessions.