

# FIN 539 MATHEMATICAL FINANCE

## Lecture 0: Course Overview

Philip H. Dybvig  
Washington University in Saint Louis

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, contact 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 during each class session. And, they will run weekly help sessions focused on problem-solving.



Shreye Mirani श्रेय मिरानी



Yudong Rao 饶煜东

# Structure

- Mini (half-semester) course
- lecture format
  - mostly on the whiteboard (good for technical material)
  - “slides” for review
- in person class
  - may switch to virtual in bad weather or other need
  - may change based on school policy
- single final exam, in-class
  - closed-book, NO electronics
- TA-conducted help sessions: focus on solving problems
- practice problems with solutions to help you to review

# Homeworks and Exam

- Homeworks:
  - Not graded
  - You can ask for help from anyone
  - Answers are provided
- Exam
  - In-class
  - Graded
  - Entirely your own work
  - Absolutely no electronics
  - Make-up: oral exam

## Cautions

- “Laissez faire” class: you are adults
- Avoid distractions
  - e-mail, 微信 (WeChat), phone calls, etc.
  - talking with your roommate if we have a Zoom class
- 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/mathfin25-1/syllmathfin.html> or

<http://dybfin.wustl.edu/teaching/mathfin25-2/syllmathfin.html>

Course materials such as homeworks and slides can be found at

<http://dybfin.wustl.edu/teaching/mathfin25-1/index.html> or

<http://dybfin.wustl.edu/teaching/mathfin25-2/index.html>

which is also linked from the canvas page

The canvas page should also contain links to recordings of the class (in Kaltura media) and information about the TA sessions.