

# ECONOMICS 173A: Financial Markets

Updated October 15, 2021

## Basic information

Lectures	A: Tu/Th 11:00-12:20, PETER 104 B: Tu/Th 12:30-13:50, PETER 104
Instructor	Prof. Alexis Akira Toda
Office hours	Th 10:00-10:50, Econ 211
Webpage	<a href="https://alexisakira.github.io/">https://alexisakira.github.io/</a>
TA	Tjeerd de Vries, <a href="mailto:tjdevrie@ucsd.edu">tjdevrie@ucsd.edu</a> Connor Goldstick, <a href="mailto:cgoldsti@ucsd.edu">cgoldsti@ucsd.edu</a>
Discussion sessions	A: W 17:00-17:50, MOS 0204 B: W 18:00-18:50, MOS 0204

## Course description

Economics 173A (Financial Markets) is an upper division course on finance. We study some institutional details on the financial markets, bond pricing (including duration analysis), optimal portfolio problem, mutual fund theorem, Capital Asset Pricing Model, and option pricing (including bounds on option prices, suboptimality of early exercise of American call options, put-call parity, binomial option pricing). The course requires good analytical skills (basic calculus and probability/statistics). To solve numerical examples, we will learn programming in MATLAB, although no prior knowledge is necessary.

Lectures are based on the textbook *Investments*, 11th edition, McGraw Hill by Bodie, Kane, and Marcus. The course will cover the following topics (in this order):

1. Introduction to personal finance and MATLAB,
2. Risk and returns (Chapter 5),
3. Bond pricing (Chapters 14–16),

4. Optimal portfolio and Capital Asset Pricing Model (Chapters 6, 9)
5. Options pricing (Chapters 20, 21).

I will be using slides and MATLAB live scripts that cover part of the textbook plus some additional materials. The discussion sessions will mostly solve problem sets.

## Textbook

As mentioned above, the required textbook is

- “Investments”, 11th edition, McGraw Hill by Bodie, Kane, and Marcus.

There is a newer 12th edition, but it is more expensive and the material is nearly identical to the 11th edition, so it is up to you to choose the edition.

If you google “Bodie Kane Marcus investments 11th edition pdf”, you can find plenty of cheap options. I do not endorse any particular option: please decide how to obtain the book at your own responsibility and risk.

Other recommended readings (not required) are:

- “A Random Walk Down Wall Street” by Malkiel,
- “The Richest Man in Babylon” by Clason.

The latter is no longer copyrighted and you can find free copies by googling.

## Evaluation

The course grade will be based on two midterms and a final. Please mark your calendar:

**Midterm 1** Consecutive 80 minutes of your choice from 19:20 Thursday October 14 to 19:20 Friday October 15

**Midterm 2** Consecutive 80 minutes of your choice from 19:20 Thursday November 11 to 19:20 Friday November 12

**Final** Consecutive 180 minutes of your choice from 11:30 Saturday December 4 to 11:30 Sunday December 5

The exam dates are not negotiable. Please do not take the course if you know you have a schedule conflict other than university-approved excuses (e.g., illness, family emergency, official university trip). There will never be make-up exams. If you miss a midterm for a university-approved reason

(you need to provide evidence), the weight on the midterm will be transferred to the final. If you miss a midterm for other reasons, your score will be zero. Per UCSD Academic Senate Regulations<sup>1</sup> a final exam is required. Hence the failure of taking the final exam for any reason will result in a letter grade F, regardless of the overall performance in other categories.

Each exam will be graded on some scale (say 0–100). Your course grade will be determined by the formula

$$G = 0.2M_1 + 0.3M_2 + 0.5F,$$

where  $G$  is the course grade and  $M_1, M_2, F$  are the scores on the two midterms and final. The course grade  $G$  will be converted to letter grades at my discretion (i.e., “curved”) at the end of the quarter, based solely on ranking within the class. **You are responsible for all materials covered up to the date of the exam**, unless otherwise explicitly announced.

All exams will take the form of Canvas Quizzes. I and the former TAs have invested significant effort to create large pools of multiple choice and numerical questions that are closely related to end-of-chapter exercises of relevant chapters/sections in the textbook and the course materials. To maintain academic integrity and fairness, each student will be assigned questions randomly (e.g.,  $n_X$  random questions from Chapter  $X$  material,  $n_Y$  random questions from Chapter  $Y$  material, etc., independent across students). I will provide practice exams (optional to take) in identical formats a few days before the actual exam. Exams will be automatically graded as soon as you submit and you will see whether your answer was correct or not, although we will provide no answer keys (to prevent students from saving correct answers from practice exams). However, we may solve some questions in lectures or discussion sessions. To take the exams, you need to have a computer with internet access and an appropriate computing software. (We recommend MATLAB but it can be anything, such as Python or some basic spreadsheets. However, financial calculators are not allowed.) More details on the exam logistics will be announced through Canvas announcements. **It is your responsibility to pay attention to these announcements and follow the instructions in order to receive credit for the exams.**

## Problem sets

There will be weekly problem sets that consist of questions similar (but not necessarily identical) to those in the exams. The problem sets do not

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<sup>1</sup><https://senate.ucsd.edu/operating-procedures/educational-policies/courses/epc-policies-on-courses/policy-exams-including-midterms-final-exams-and-religious-accommodations-for-exams/>

count towards your grade in any way and you do not need to submit your solutions. However, I highly recommend that you attempt to solve the problems to get prepared for the exams. The TAs will explain solutions to selected problems in discussion sessions.

## Matlab

You can install MATLAB to your computer following the instructions here. You can also run MATLAB online from here. We (I and TAs) will not provide email support for how to install or use MATLAB (there are abundant online tutorials that you can google), but TAs may help you if you come to the discussion sessions.

## Questions

The best opportunity to ask questions is *during* the class, for two reasons. First, you can resolve your question immediately (assuming—well—I know the answer). Second, your classmates are likely to have similar questions, so they can benefit from questions being resolved and I benefit by saving time. So, don't be shy, please ask questions.

## Email policy

We (I and TAs) do not have the capacity to respond to every email inquiry. **Email communications to us should be limited to** discussions of either (i) **course-related personal matters** such as request of exam accommodations due to university-approved reasons or request of a letter of recommendation (but only after carefully reading my policy here) or (ii) **course-related logistical matters that have not yet been addressed** in the syllabus, Canvas announcements, or other forms of communications. Any other questions should be raised in person during lectures, discussion sessions, and office hours, or posted on the Canvas discussion board. Email communications that do not fall into category (i) or (ii) above may not receive our attention, or even if they do, may be answered only through the Canvas discussion board (after deleting identifying information). For more information on email tips, please read this. We do not monitor the Canvas Inbox; please do not use it. Any message sent there will be ignored.

## What I expect from you

- Please read the syllabus.

- Please pay attention to Canvas announcements.
- I expect you to come to classes. If you miss a class, it is your responsibility to catch up.
- You will pass the class if you put reasonable effort. Please put reasonable effort.
- The university sets various deadlines for withdrawing from the course. If you choose to take the course, I understand that you agree to everything described in the syllabus.
- I take academic integrity seriously: please click “Academic Integrity” tab on Canvas.
- If you want me to write a letter of recommendation, please follow my policy:  
<https://alexisakira.github.io/misc/letter-of-recommendation>

## Statement of values

I believe in individual freedom. We are free to choose whatever we want, within the rules set by law and other social norms, as long as we respect other people’s freedom. Freedom comes with responsibility. Whatever we choose to do (or not to do), we must accept the consequences.

In my professional life as a researcher, mentor, and teacher, I promise that I will evaluate others based solely on merit and nothing else. For example, if I write a referee report for a paper, your affiliation, authority, fame, or personal connection to me will play no role. If I evaluate your file for admission to graduate school, I will not read your diversity statement but yet will give you the highest mark for “diversity” if I have to select a mark. If I assign a grade or write a letter of recommendation, I will base my evaluation solely on your academic performance and promise. If I am involved with recruiting, I will be interested only in your scientific achievements and future prospect, and I will ignore everything else including your age, height, hair style, dietary preferences, skin color, ancestral heritage, nationality, gender, sexual orientation, marital status, number of children, political views, religious beliefs, among others.