
FIN 687 Special Topics in Finance

Syllabus, Fall 2019

Instructor: Stefanos Delikouras

University of Miami, 514-L Jenkins Building, Coral Gables, FL 33124

phone: (305) 284-1864 *email:* sdelikouras@bus.miami.edu.

course website: FIN687 on Blackboard.

Class Meetings

Time: TuTh 10:15 AM – 12:15 PM; **Location:** Hilel Multi C

Textbooks

Mathematics for Finance: An Introduction to Financial Engineering by Capinski and Zastawniak (CaZa), Springer.

Office Hours

Tuesday 12:30 PM – 2:30 PM or by appointment

TA Office Hours

TA: Sihyi Zhang; **email:** szhang@bus.miami.edu

Day & Time: Wednesday 8:00 AM – 10:00 AM and by appointment

Location: Finance Department Trading Room

Course Objectives

This course is the basic financial mathematics course of the MSF program. The purpose of this course is to equip students with the fundamental tools and techniques essential for a portfolio manager with good understanding of finance. This course is also designed to provide a foundation for concurrent/subsequent coursework in investments and derivatives.

Covered Topics

The primary focus of this course is financial mathematics. We will first discuss the concepts of risk-free rate and risky assets in extensive detail. Next, we will apply the principles of binomial and trinomial models to describe the dynamics of stock prices. Then, we will introduce

the concept of risk and return in portfolio management. We will also begin our discussion of derivatives with forwards and futures. We will conclude with a thorough analysis of options, option pricing, and hedging.

Honor Code

All students must comply with the University of Miami and Miami Business School policies for conduct and academic honesty at all times during this course. Any violations of these policies will result in referral to the appropriate administrative body.

Special Accommodations

If you need an accommodation for a disability, please let me know at your earliest convenience. Some aspects of the course, the assignments, and the in-class activities may be modified to facilitate your participation and progress. As soon as you make me aware of your needs, we can work with the Office of Services for Students with Disabilities to help us determine appropriate accommodations. I will treat information you provide as private and confidential. If you are planning to miss a lecture due to religious reasons you need to notify me within three days within the first three days of classes.

Smartphone, Tablet, and Laptop Use

Smart-phones and tablets are strongly prohibited during exams. Smart-phones are also prohibited during lectures. The use of tablets and laptops during lectures is allowed provided that these devices are used for class-related material, e.g., taking notes, solving problems in Excel, and downloading financial data from the internet. Please note that during class, I reserve the right to ask you to turn these devices off.

General Guidelines

- **Readings:** You are expected to complete the required readings **before** each class. The readings for each class include relevant sections from the textbook, lecture notes, and journal articles.
- **Problem Sets:** There will be roughly four problem sets. You need to upload your completed problem sets on Blackboard prior to the specified deadline. I will not accept problem sets submitted past the deadline.

- **Active Participation:** During lectures, I like to ask a lot of questions.

Difficult Topics: If you find certain sections of the course difficult, do not panic! I encourage you to discuss these topics with me, the TA, and/or your colleagues.

Continuous Feedback: I encourage you to give me feedback about course material, teaching style and anything else that would help you understand finance concepts better. You should come and talk to me in person if you have any concerns and/or suggestions.

Examinations and Grading

- **Exams:** There will be **two** exams
 - **Midterm Exam: Tuesday, November 5th 2019.** The Midterm Exam will take place in class, during regular class time. There WILL NOT be a make-up midterm exam. If you miss the Midterm Exam without a valid excuse, you will be assigned a grade of zero. If you miss the Midterm Exam due to a health or family emergency, your grade in the Final Exam will also count as your Midterm Exam grade. Please note that in the case of health or family emergency you need to provide justification (e.g., proof of travel arrangements, doctor's note, etc.).
 - **Final Exam: Thursday, December 5th 2019.** The Final Exam will take place in class, during regular class time. The Final Exam date and time CANNOT change unless there is an important health or family emergency. In this case, you need to provide appropriate justification (e.g., proof of travel arrangements, doctor's note, etc.) in advance.
 - I will be discussing what to expect in the exams during lectures.
 - Time permitting, I will also hold a review session before the exams.
- **Grading Policy:**
 - Maximum Possible Score: **100**.
 - *Final Exam:* **40** points of your grade.
 - *Midterm Exam:* **30** points of your grade.
 - *Group Problem Sets:* **20 points**. There will be roughly four problem sets. For these problem sets, you will work in groups. I will assign the groups. You will get the full 20 points if you turn in **ALL** problem sets in a clean and presentable way, showing considerable effort for **ALL** questions. Problem sets are the best way to practice for the exams.

– *Participation: 10 points.* The participation grade is based on your active participation in the course. You will get the full 10 points if you come to all the lectures, and show an active interest in the course. Over the course of the semester, I will be frequently taking attendance. I will also be assigning individual bonus problems that can boost your participation grade.

- **Grade Distribution:** Your grades will be curved at the end of the course. Following the guidelines of the School of Business, the grade distribution will be curved so that the average grade is around **B**.
- **No Extra Credit Assignments:** There will not be any extra assignments designed to compensate for low grades in exams. This is a university-wide policy, and there will not be exceptions to this rule under any circumstances.
- **Use of Calculators and Laptops during Exams:** Each student is required have his or her laptop to use during exams. **Sharing** of laptops during exams is **NOT** permitted.

How to Study for the Class?

- Mainly focus on the lecture notes and problem sets.
- Read the CaZa textbook for background information and get a broader perspective on the topics covered in class.
- Use the problem sets to gain further understanding of the basic concepts. Some exam questions will be **similar** to the problem sets.
- To solve the problems in the problem sets and the exams you need to familiarize yourself with Excel and/or Matlab.

Tentative Topics - Important Dates

1. Introduction;

Suggested Readings: Syllabus

2. Financial Assets and the Risk-Free Rate, 10/15/2019;

Suggested Readings: CaZa, Chapters 1 & 2.

3. Risky Assets, 10/17/2019;
Suggested Readings: CaZa, Chapter 3.
4. Discrete Time Asset Pricing Models I, 10/22/2019;
Suggested Readings: CaZa, Chapter 4.
5. Discrete Time Asset Pricing Models II, 10/24/2019;
Suggested Readings: CaZa, Chapter 4. Group Problem Set 1 Due.
6. Portfolio Management I, 10/29/2019;
Suggested Readings: CaZa, Chapter 5.
7. Portfolio Management II, 10/31/2019;
Suggested Readings: CaZa, Chapter 5. Group Problem Set 2 Due.
8. **Midterm Exam: 11/5/2019, regular class hours, in class.**
9. Futures and Forwards I, 11/7/2019;
Suggested Readings: CaZa, Chapter 6.
10. Futures and Forwards II 11/12/2019;
Suggested Readings: CaZa, Chapter 6.
11. Introduction to Options and Option Pricing I, 11/14/2019;
Suggested Readings: CaZa, Chapters 7 & 8.
12. Option Pricing II, 11/19/2019;
Suggested Readings: CaZa, Chapter 8. Group Problem Set 3 Due.
13. Option Pricing III, 11/21/2019;
Suggested Readings: CaZa, Chapter 8.
14. Group Problem Set 4 Due, 11/28/2019;
15. **Final Exam: 12/5/2019, regular class hours, in class.**

This is only a TENTATIVE list of topics and problem sets that I plan to cover during the semester. I may ADD or DELETE topics and problem sets from this list or MODIFY the corresponding problem set due dates and exam dates and times as the semester progresses. You are responsible for any changes I announce in class.