

## Syllabus 2023 - Investments 647

**Nuno Clara**

Phone: + 1 (919) 482-2484

Email: nuno.clara@duke.edu

Office hours: Wednesdays 2:00pm - 4:00pm (via zoom) or by appointment

### I. Course Description

This course provides a rigorous treatment of the fundamental principles of investments, investment management, and asset pricing. The course aims to develop a framework for understanding how to construct a portfolio and how to evaluate investment strategies and managers. Along the way, we will discuss the specifics of investments in stocks, bonds, mutual funds, ETFs, derivatives, private equity, among other topics. That requires understanding the institutions of financial markets, how to evaluate the quality of a portfolio and particular investments, and how to feasibly implement strategies. As a baseline, this class will give you concrete knowledge that you can use in constructing your own portfolio, optimizing taxes, and making other financial plans. The course should be valuable from the perspective of the individual investor, the corporate financial manager, and the investment manager.

### II. Course Material

The class notes that I will make available online are self-contained, and sufficient in terms of studying material for the course. However, if you would like a book, to help you go over some of the material a good reference is:

*Asset Management A Systematic Approach to Factor Investing by Andrew Ang*

Also required for the course is a course pack, which includes the cases that are covered in the course. Class notes will be made available online. If necessary, additional handouts are either distributed in class or made available on the course website.

### III. Grading

The course grade is based on:

1. Team assignments (30 pts)
2. Class participation (10 pts) (including the final feedback survey)
3. Quizzes (30 pts)
4. Final exam (30 pts)
5. Penalty for not filling the final feedback survey (10% of the grade).

#### *Team Assignments:*

- There will be 3 team assignments. These will be a mixture of case studies and work with data. They will help you learn how to solve real-life asset allocation problems.
- You will have around 1.5 weeks to solve each team assignment.
- For each question of each team assignment you should provide one slide with the answer (maximum two slides per question).
- You should also turn in the excel file with your calculations.
- We will not discuss the team assignments in the class but the TA will go over the solutions with you. You should ask me or the TA if you have any questions.

Team assignment	Due date
1	April 2, 11:59pm
2	April 12, 11:59pm
3	April 23, 11:59pm

#### *Quizzes:*

There will be 4 quizzes. The quizzes are administered online, every Wednesday from March 29th through April 26th, and last 30 minutes. The quizzes are posted on Canvas. You will be able to complete the quiz anytime between 10:00am and 11:55pm on Wednesday. Once you start, you will have 30 minutes to answer a set of questions and submit your solution. The answers must be submitted by the deadline at 11:55pm; no late submissions are accepted. The precise format and scope of the quizzes will be announced in class. You can consult the course

materials and the textbook and use Excel while taking the quizzes. However, quizzes must be solved individually without consulting anyone.

With a week's notice I may move the quiz from Wednesday to the beginning of the class on Thursday. With one week's notice a quiz may be moved from a given week to the following week (depending on the course pace).

I will only count the 3 best quizzes out of the 4. Therefore, there are no make-up quizzes. If a student cannot take a quiz, that quiz is dropped and the other quizzes are counted. It is strongly recommended that students prepare for and take all quizzes.

### *Class participation*

Attendance, preparedness, participation in classes, polls, will all be factored into the participation grade. Students are expected to attend all classes with the section of the course for which they are registered, as their participation cannot be tracked otherwise. In particular, a student's absence from class will affect his/her participation grade. At the end of the course all team members will evaluate the participation of others in developing case solutions - this evaluation will be an important input to determine the class participation grade.

### *Final exam*

The final exam will be an in-class open book exam. You can consult any materials distributed during the course. You cannot, however, use a laptop, phone, or tablet during the exam. The final exam will cover all the material. You will need a calculator to solve the exam. You must solve the final exam individually without consulting anyone. Additional details about the logistics and format of the final exam will be announced during the term.

The final exam takes place during the official exam period for the MBA program. I have no control over this schedule. As far as make-up final exams are concerned, I follow the school's policy on this issue. This policy treats three sets of circumstances differently.

- Unforeseen events. If unforeseen events arise that prevent a student from taking a final exam on the scheduled day, the student may be allowed to take the exam on the early exam day. Examples of such circumstances are: such as illness, injury, childbirth, criminal acts, etc.
- Foreseeable but exceptional events. If foreseeable but exceptional circumstances arise that affect the student's ability to take a regularly scheduled final exam, then an alternative

exam time on the reading day before the scheduled exam period may be offered to the student.<sup>1</sup> Examples of such circumstances are: court hearings, weddings of close family members, etc.

- Foreseeable but non-exceptional circumstances. In all other circumstances, students are required to take the final exam at the date and time scheduled by Fuqua's Registrar. The following are examples of such circumstances: non-urgent medical appointments, job interviews with alternative dates available, wedding for friends or family in which the student does not serve a formal role, college reunions, etc.

#### **IV. Office hours and how to reach me**

The best way to reach me is via email: [nuno.clara@duke.edu](mailto:nuno.clara@duke.edu). At the end of each class, I will stay in the classroom for some time, so you can reach me then as well. I will conduct office hours Wednesdays 2:00pm - 4:00pm, via Zoom (or by appointment). You can also email me and book an appointment.

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<sup>1</sup>A faculty member reserves the right to verify with any third party the details of the exceptional circumstances. Any discrepancy between a student's statement of the facts to a faculty member and facts obtained from a third party constitutes a violation of Fuqua's Honor Code.

## V. Course structure

Below is an overview of the outline for this course. This is not fixed in stone and I will adapt according to your interests, and the speed at which we progress. The course website will always contain the most updated list and sequence of topics, along with the course schedule; as such, students should refer to it, as opposed to this list, from NOW ON.

### A. Risk, Return, Trading, Mean-Variance optimization

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Class 1	Mon, Mar 20	Essential Concepts: Risk, Return, Trading		
Class 2	Thu, Mar 23	Portfolio allocation with one risky asset Mean-variance optimization with multiple assets	Team assignment 1: <i>Risk, Return, Sharpe Ratios and Certain Equivalents</i>	Due Date: Sun, Apr 2nd, 11:59pm
Class 3	Mon, Mar 27	Mean-variance optimization with multiple assets Estimation of the mean-variance frontier		
Quiz 1	Wed, Mar 29	Quiz 1		

### B. Equity Investments

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Class 4	Thu, Mar 30	CAPM and introduction to performance evaluation (alpha)		
Class 5	Mon, Apr 3	Performance evaluation (alpha) and introduction to anomalies	Team assignment 2: " <i>The Norwegian Government Pension Fund: The Divestiture of Wal-Mart Stores Inc</i> "	Due Date: Wed, Apr 12th, 11:59pm
Quiz 2	Wed, Apr 5	Quiz 2		
Class 6	Thu, Apr 6	Anomalies and Factor Models		
Class 7	Mon, Apr 10	Factors Models Data advances for trading strategies		
Quiz 3	Wed, Apr 12	Quiz 3		
Class 8	Thu, Apr 13	Mutual Funds and Hedge Funds	Team assignment 3: " <i>Martingale Asset Management LP in 2008, 130/30 Funds, and a Low-Volatility Strategy</i> "	Due Date: Sun, Apr 23rd, 11:59pm

### C. Household Finance

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Class 9	Mon, Apr 17	Socially Responsible Investing and ESG Investing over the life-cycle		
Quiz 4	Wed, Apr 19	Quiz 4		
Class 10	Thu, Apr 20	Tax-efficient investing Introduction to real estate		
Class 11	Mon, Apr 24	Real estate and mortgages		

### D. Other Topics

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Class 12	Thu, Apr 27	Time allowing, one or two of the following topics: Fintech, Private Equity, Bonds, Market Timing and Predictability		
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