

New Economic School

Master of Arts/Science in Finance

Asset Pricing

Module 3, 2021-2022

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1. Objectives

Much of the material that we will cover is at the center of the work underlying three Nobel prizes that financial economists have received: Markowitz's portfolio selection theory, Sharpe and Lintner's Capital Asset Pricing Model, and Shiller and Fama efficient market hypothesis. The goal of this course is to provide you knowledge of the theoretical foundations of portfolio theory, asset pricing and portfolio management, techniques to apply those theories, and the skills and approaches to implement these ideas.

This is partially a **case course**. This is **not** a quant course you should take to know quantitative finance. Do not expect me to talk in great details about programming, HFT or algo-trading. That's not what would be in the course. However, we will spend lots of time thinking about optimal portfolios, market risks and anomalies, and trying to predict future returns, so to some extent this is indeed data-driven course.

In case discussions, students become the teacher. There is an excellent reason for this: you learn best when you have to figure things out on your own and when you have to defend your ideas before a group. That's both demanding and real fun.

Case discussions can be wonderful or horrible. They are wonderful when students prepare (and hopefully discuss in small groups) before class. This means preparing analyses on your own or in groups before class. They are wonderful when you come to class with an opinion and ready to defend it, but you are also ready to change your mind with faced with the evidence.

Because this is partially a case course, your role in learning is much more important than in the traditional classes you are used to. Case discussions depend on the active and effective participation of students. Without significant preparation and participation, you and your classmates will gain only this

much from the course. Whether we have an excellent class or not depends largely on you. You have to take responsibility for your own learning in this class. This means that before the classes with cases you need:

1) **Preparation:** if you do not read and analyze the case, and then formulate an action plan, the case discussion will be minimal and you will learn little from the case.

2) **Participation:** You won't learn anything if not present and participating in the classroom discussion. You have a responsibility to share your understanding and judgment with the class to advance the group's collective skills and knowledge.

For this class you need the ability to concentrate on intellectually demanding concepts for an extended period of time and the discipline to keep up with an unusually high workload to succeed in this class. This is a demanding and time consuming course and there is a lot of material to cover in only seven meetings. Be prepared to devote a significant amount of time to the course.

2. Assessment

The course grade will be based on

- 1) 2 cases participation and write-ups — 20%
- 2) 3 long home assignments — 30%
- 3) Final exam — 50%

Please note all the lecture slides and assignments are in English. It would be better if you write your answers to home assignments and write-ups in English as well.

2.1 Missing the final.

Should a student miss the final exam, if NES administration has verified that the reason is legitimate, the student may take a comprehensive, covering all material in the course. This replacement will be offered approximately one week after the final's date, depending on the scheduling of other evaluation works and other bureaucratic reasons. The professor will determine exact time of the replacement after the final has been administered.

If a student's grade for the course is failing, the student retains the right to have **two** make-ups (beyond the replacement comprehensive mentioned above). These two make-ups will be written and comprehensive, covering all the material in the course.

3. Cases

Case grading is done in two parts. The main part is grading of your **contribution** during the period for case discussion. Notice the word "contribution". It is not enough to speak during a case discussion. You must also add to the conversation through your insight or analysis. Merely repeating previously made points or restating facts is rarely a contribution.

Each student is also to complete a case analysis worksheet. You can download it from my.nes; you will also be able to upload them on my.nes. These worksheets are MS Word documents. You do not need to turn in spreadsheets (though you may use Excel for your analysis of the case). The point is for me to have some record that you thought about the case and the quality of that thought. Keep your write-ups brief. Please **save and upload your write-ups as pdf** (it is then easier to read).

You are *strongly, strongly* encouraged to discuss the cases before class (and after too). Do NOT under any circumstances, write your case write-ups together, help someone write theirs, or have someone write yours. This is cheating: read the Academic Integrity policy below. Your in class contribution is graded from 0 to 5; your write-ups are graded by receiving from 0 to 5. Those are the only grades and I will not comment on them; however, you will probably see that it depends mostly of how deep and thoughtful your contribution or write-up is.

4. Materials

Lecture slides and other materials will be posted on my.nes about a week before the lecture. The lectures are in pdf format.

5. Recommended textbook(s) and cases

Textbook:

There is a useful textbook by **Bodie Z., Kane A. and Marcus A.J., Investments and Portfolio Management, 9th ed., McGraw-Hill** (available at the library, called below **BKM**). We will definitely use one chapter on performance measurement from that book. However, I would recommend to read some or all recommended chapters from the book. I will mention exact chapters below, and most important readings in the additional file.

We will also use Chapters 8-14 of Welch non-existent Investments text book available here:
<http://book.ivo-welch.info/bookg.pdf>

Finally, you may read some of chapters of his main book <http://book.ivo-welch.info/home/>.

The course includes two cases:

- 1) "Darden Capital Management: The Monticello Fund"
- 2) "Global Asset Allocation: All That Glitters?"

6. Course outline

This outline is preliminary and will be changed in the course of studies.

Classes 1-2.

Topics: return (reward), risk (volatility), utility theory, diversification with several assets, introduction to mean-variance analysis, plus elements of a discussion of learning by the case method.

Readings: Welch (Investments) Chpt. 9 and 10. BKM, Chpt. 7.

Homework after the lecture:

Home assignment 1.

Classes 3-4.

We start from the Capital Asset Pricing Model. Then: using a portfolio optimizer in Excel, running regressions in Excel. Index calculation. Performance measurement: Sharpe ratio, Jensen's alpha, Fama's measure, Treynor ratio, Appraisal ratio.

Readings:

- 1) Skim Welch (online, 4th ed.) Chapter 7 ("A first look at investments");
- 2) Welch (Investments) Chpt. 11 and 12. 3) BKM, Chpt. 9.

Classes 5-6.

Home assignment 1 submission.

Topics: empirical evidence on asset pricing (CAPM, APT, multi-factor models)

Readings:

- 1) Welch (Investments) Chpt. 13 and 14.
- 2) BKM, Chpt. 13.

Homework:

Home assignment 2 after the class

Your first case (for the course): Read, analyze and prepare the case "Darden Capital Management: The Monticello Fund" Darden Case UV0517. Fill out the "Case Analysis Worksheet" (available at my.nes). Turn in a pdf version of you Case Analysis Worksheet including answers to the study questions to my.nes.

Classes 7-8.

Topics: proceed with empirical evidence on asset pricing (CAPM, APT, multi-factor models). Mutual funds and hedge funds.

Reading:

- 1) Welch (online, 4th ed.) Chapter 10 ("Market Imperfections").
- 2) BKM, Chpt. 10.

Classes 9-10.

Home assignment 2 submission.

Topics: Return predictability. Asset allocation. Market efficiency.

Reading:

- 1) Read Welch (online, 4th ed.) Chapter 12 ("Perfect and Efficient Markets, and Classical and Behavioral Finance");
- 2) BKM, Chpt. 11.

Homework after the lecture:

Home assignment 3.

Classes 11-12.

Topics: Event studies.

Reading:

- 1) Welch (online, 4th ed.) Chapter 12 ("Perfect and Efficient Markets, and Classical and Behavioral Finance");
- 2) BKM, Chpt. 11.

Homework after the lecture:

Read, analyze and prepare the case "Global Asset Allocation: All That Glitters". Fill out the "Case Analysis Worksheet". Turn in a pdf version of you Case Analysis Worksheet including answers to the study questions to my.nes;

Classes 13-14.

Home assignment 3 submission.

Topics: (if time permits) Behavioral finance and technical analysis. Limits to arbitrage.

7. Communication

Please contact me if you have *any* problems with the course — talk to me before or after the lecture, or in the break, email me, or come during my office hours. I would much prefer to hear your concerns or worries early on when I can clear the problem up rather than hear about them afterwards.

8. Sample tasks for course evaluation

Problem 1

Assume there is a no-borrowing constraint (one may not borrow money and pay risk-free rate in return). How the mean-variance frontier looks like in this case?

Problem 2

Assume there are only two risky securities. Show how the optimal solution to the problem of an investor looks like in mean-variance world.

9. Academic Honesty.

Unless specifically instructed, all work in this class is to be your own. Representing someone else's work as your own is unethical.

If you are caught representing someone else's work as your own, you will receive a zero for the assignment, the midterm/final or write-up. There are no make-ups or make-up assignments in the case of academic dishonesty.

Please note that it is very, very easy to be honest. If you are working on an assignment and you get information from a book or website, all you need to do is cite the book or website.

On final and write-ups: giving an answer or taking an answer to a fellow student are both dishonest. Either will result in a zero for the final or write-up on the first occurrence (and I will inform the NES administration). The second occurrence will result in a failing grade for the course without opportunity to make up the final.