

# Syllabus for FIN367-Q

## Investment Management: Quantitative

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**Class meetings:** Monday and Wednesday, 11AM-12:30PM, UTC 4.104.

**Prerequisite:** Upper-division standing, and FINANCE 357 or 357H.

## 1 Course Description

This course provides a rigorous quantitative treatment of the core concepts of investments for finance majors. It broadly covers financial instruments, such as equity, fixed income, and derivative securities, as well as key concepts in international finance. It makes use of spreadsheet modeling to implement financial models.

We begin by discussing investment theories that concern dealing with risk in general, although equity securities will be our primary focus during this unit. We then proceed to discussing concepts concerning fixed-income securities, such as pricing of these securities, yields, as well as theories about risk concerning the term structure of interest rates. Our third unit discusses derivative securities, and here, besides the basics of markets and instruments available, we will spend a great deal of time discussing the pricing of such securities. An application of many of these topics to investing across borders (international finance), as well as a discussion of the different types of risk involved in such investments and how these can be dealt with wraps up the course.

What we know about Investment Management is a direct result of academic finance research. In this class, we will therefore frequently use and analyze the results from academic finance papers to acquaint you with such research. The course also contains a project in which you yourself will be asked to do extensive analysis on a research paper in finance.

## 2 Textbook

Essentials of Investments, by Bodie, Kane and Marcus, 9th Edition (ISBN 978-0-07-803469-5); I will be referring to this text as *BKM* in reading assignments, which will be posted at the beginning of every set of lecture slides. This book constitutes the required text for the course.

Readings are generally meant to supplement what is taught in lectures and to deepen your understanding of the material. Unless otherwise stated, you will not be responsible for material covered only in the textbook

and not in class. Caveat: the material covered in class is of course not limited to the content of the slides, but also includes things that are discussed without being on any slides, and any implications thereof.

I do not expect readings to be done by the time a topic is covered in class. The textbook should be your source for deepening your understanding of the material after I have treated it. However, you should have no expectation to be able to keep up with the course, without doing the relevant readings after material has been discussed in lecture.

### 3 Other Course Materials

Lecture slides will generally be made available shortly before class. Lectures will be easier to follow if you print out the slides and bring them along to help you take notes. Packets containing assignments will be made available electronically.

All electronic materials will be available on Canvas. Use Canvas as your primary resource for all electronic materials for the course.

### 4 The Economic Press

You should make a habit of reading the economic press and thinking about articles that are relevant to the course. Every now and then, I will take a few minutes to discuss such an article in class. Should you wish to draw my attention to such an article, which you believe we should discuss, please feel free to do so. Further, frequently reading the economic press will make it easier to find an article that you will want to treat for your group presentation.

### 5 Course Requirements and Grading

**As an overarching requirement, you should have absolutely no expectation of keeping up with the course, unless you devote at least the same amount of time outside of class reviewing the material and reading the textbook, as we spend in class discussing it.** This time must be spent in addition to the time necessary for doing projects and assignments, as well as final preparation for each exam. Students for whom it becomes apparent that they are not putting forth this level of effort will be refused help in office hours when seeking extra help, and may lose points on the *professional conduct* portion of their participation score, as such behavior clearly disrespects the professor's time and resources.

Each element of the course has the following points value:

Class Participation and Attendance	5%.
Project with Presentation	10%.
Problem Sets (3)	5% each (i.e. 15% combined).
Excel Exercise on Portfolio Management	5%.
Midterm examinations (2)	15% each (i.e. 30% combined).
Final examination	35%.

I will compute the grade for each midterm as

$$midterm_n = \max(midterm_n, final)$$

This can only work in your favor; it means you get a free option. As you will see in the course, you won't see many of these in your life. Please notice that at my office hours I will give priority to students who attend class on a regular basis and who turn in homework.

**There is no opportunity to do *extra credit work* in this course.** Your score for the course will be determined only by the requirements above and by the output produced for each. If you are taking the course pass/fail you must complete all projects and exams in order to pass the course.

Your final grade will be determined by where your overall score for the course lies in relation to that of your classmates. The final cutoffs between letter grades will be determined by the shape and position of the course distribution.

**Exams** The two midterm exams will be given during class time on the following dates:

- Midterm 1: Wednesday, February 19.
- Midterm 2: Wednesday, April 2.

**The final exam will take place on the date scheduled by the registrar's office. Most likely, this will be Friday, May 9, from 7 to 10 PM. However, as you know this is subject to change.**

Please bring a photo ID (preferably your student ID) to each exam.

The first midterm covers the material studied up to that point. The second midterm covers the material studied between the first and the second midterm. The final exam is cumulative, covering the material from the entire course.

The exams will test your critical understanding and your ability to apply the material. Rote-level memorization will in most cases be unnecessary, and will certainly not get you very far in solving questions. The latter can also be said for the use of a calculator.

The position of the exams in the course outline are approximate indications of where within the material, exams will fall. However, final determination of the scope of each exam will be made before each exam, based on our progress.

**Important!** You must take all exams at the date, time, and location for which they are scheduled. No alternative exam dates or make-up exams will be given, except in family or medical emergencies. In such cases, you must get approval from the Student Emergency Services office and I must be informed of your circumstances by the start of the exam at the latest.

Do not schedule job interviews during exams. Should it be unavoidable to do this, however, the following will apply:

- You must submit evidence from the firm (on the firm's letterhead) with which you are interviewing that you have an interview scheduled for the time of the exam, and that no other interview time was available. This must be done at least 24 hours before the start of the exam.
- You will *not* be given a make-up test. Instead the average score of your other two exams will be used for the missed exam.

**All deadlines are final.**

**Problem Sets** You may work on problem sets in groups of no more than three. Should you elect to work on homework in such a group, you may hand in a single sheet for the entire group (with up to three names on it), rather than three identical pieces of work. On the other hand, if two identical or extremely similar sheets are submitted and illegal cooperation is thus suspected, this will be treated as scholastic dishonesty.

Working in a group will be mandatory for the project; there will be a formal group signup later in the semester, to form these groups.

All assignments are due at the beginning of class on the due date. Assignments submitted after this time will be considered late and will generally not be accepted.

**Project** For the project, you will be asked to select an academic finance paper from a reading list, study this paper, understand it, perform some critical analysis on it, and then teach the paper to the class and acquaint your classmates with your analysis. A write-up explaining your work will accompany your presentation and expose your analysis. The project will be due during the last week of class.

**Writing Eloquently** It is absolutely essential that anything you submit be written eloquently and correctly, in excellent, formal business English. The write-up of your ARGUS project will be assessed for quality of writing, among other factors. Further, you will need to give written responses to exam and homework questions; there will be no multiple choice. This means that if you lack the ability to write clearly and correctly, this will severely affect your performance in this class (as it will in the business world). The University has writing tutor services available, should you want to increase your comfort level in this respect.

**Taking Notes** There will be plenty of material in the course that is covered in class and that is not pre-printed in the slides. This includes things for which I use the board, but also things which I simply speak about. You are responsible for all of this material, in whatever form it is delivered. By now, you should know how to take good notes in a class. If not, please seek help on this, also from writing tutors.

**Attendance and Participation** Note that a part of your grade is based on participation so participation is definitely an integral part of the course. While class attendance will not be taken, it should be clear that you must be present to participate... I will keep a record of who makes meaningful contributions during each class meeting. If you make such a contribution, please be sure to stop by at the end of class to ensure you are on my list.

If you must miss a class it is your sole responsibility to find out what was done that day, including administrative announcements. I will not catch you up! Do not make inquiries to me about material you missed in a class you did not attend. This is unprofessional and will negatively impact your participation grade.

**If you must leave a class early, please let me know before the beginning of class.** Leaving in the middle of class without having advised me of your need to do this will undo any positive standing you may have worked for hard throughout the rest of the semester by actively participating.

**McCombs Professionalism Policy** The highest professional standards are expected of all members of the McCombs community. The collective class reputation and the value of the program's experience hinges on this.

Faculty are expected to be professional and prepared to deliver value for each and every class session.

Students are expected to be professional in all respects. Email and Internet are not allowed during lectures. Mobile phones and other electronic devices have to be switched off during class at all times.

The Texas classroom experience is enhanced when:

- Students arrive on time. On time arrival ensures that classes are able to start and finish at the scheduled time. On time arrival shows respect for both fellow students and faculty and it enhances learning by reducing avoidable distractions.
- Students display their name cards. This permits fellow students and faculty to learn names, enhancing opportunities for community building and evaluation of in-class contributions.
- Students minimize unscheduled personal breaks. The learning environment improves when disruptions are limited. Should you have to leave class early, please have the courtesy of letting the instructor know before the beginning of the period and leave quietly so as not to disturb the other members of the class.
- Students are fully prepared for each class. Much of the learning takes place during classroom discussions. When students are not prepared they cannot contribute to the overall learning process. This affects not only the individual, but their peers who count on them, as well.
- Students attend the class section to which they are registered. Learning is enhanced when class sizes are optimized. Limits are set to ensure a quality experience. When section hopping takes place some classes become too large and it becomes difficult to contribute. When they are too small, the breadth of experience and opinion suffers.

- Laptops are closed and put away. When students are surfing the web, responding to e-mail, text messaging each other, and otherwise not devoting their full attention to the topic at hand they are doing themselves and their peers a major disservice. Those around them face additional distraction. Fellow students cannot benefit from the insights of the students who are not engaged.
- Phones and wireless devices are either off or completely on silent mode. Any student text- messaging or emailing during class will be asked to leave the class. We've all heard the annoying ringing in the middle of a meeting. When a true need to communicate with someone outside of class exists (e.g., for some medical need) please inform the professor prior to class.

**I also expect that written and oral communication with the instructor or the TA take place in a professional manner:**

In your written communications with the instructor or TA, professional conduct requires the use of a level of formality appropriate to the business world. This means messages must include a salutation, a body, and a closing. Cryptic messages containing text message abbreviations or beginning with, for example, "Hey" will be considered unprofessional. The same is the case for asking the professor or TA a logistical question that was already answered in any of the written course material, or during in-class announcements.

Litmus test: Ask yourself, "Do my actions disrespect the time, ideas, or efforts of others?" If the answer is "No", then ask yourself, "Am I presenting myself in the best way possible?" If the answer to this is "Yes," then you are probably behaving professionally. If not, you will want to reevaluate your actions.

**Your professionalism both in- and outside the classroom with respect to the course and instructor will contribute to your participation grade. If appropriate, negative scores in the participation grade are possible.**

**Calculator** A financial calculator capable of computing present value and rates of return of cashflow series will be required for class meetings and exams. I will be using a Texas Instruments BA-II Plus but it is not necessary for you to have the same calculator. It is your sole responsibility to understand how to make the correct calculator inputs. Please bring your calculator to each class, as this way you will be able to work through in-class examples. Also note that as used in this class, your calculator will not be a replacement for reasoning and problem solving skills.

## 6 More Terms and Conditions

**Mobile phones or computers of any kind (except your financial calculator) are not allowed in class.** If you have such a device with you in class, it must be off and in your bag at all times while class is in session. Failure to comply with this will be considered disruptive behavior and result in expulsion from a particular class session.

**Emergencies requiring Course Accommodations** If you encounter an emergency for which you would like to request an accommodation, please report this to UT's Student Emergency Services (<http://deanofstudents.utexas.edu/emergency/index.php>). This office will assess your situation and request appropriate accommodations for you.

**Students with Disabilities** Students with disabilities may request appropriate academic accommodations from the Division of Diversity and Community Engagement, Services for Students with Disabilities, 512-471-6259, <http://www.utexas.edu/diversity/ddce/ssd/>.

**Religious Holy Days** By UT Austin policy, you must notify me of your pending absence at least fourteen days prior to the date of observance of a religious holy day. If you must miss a class, an examination, a work assignment, or a project in order to observe a religious holy day, you will be given an opportunity to complete the missed work within a reasonable time after the absence.

**Policy on Scholastic Dishonesty** The McCombs School of Business has no tolerance for acts of scholastic dishonesty. The responsibilities of both students and faculty with regard to scholastic dishonesty are described in detail in the BBA Program's Statement on Scholastic Dishonesty at <http://www.mcombs.utexas.edu/BBA/Code-of-Ethics.aspx>. By teaching this course, I have agreed to observe all faculty responsibilities described in that document. By enrolling in this class, you have agreed to observe all student responsibilities described in that document. If the application of the Statement on Scholastic Dishonesty to this class or its assignments is unclear in any way, it is your responsibility to ask me for clarification. Students who violate University rules on scholastic dishonesty are subject to disciplinary penalties, including the possibility of failure in the course and/or dismissal from the University. Since dishonesty harms the individual, all students, the integrity of the University, and the value of our academic brand, policies on scholastic dishonesty will be strictly enforced. You should refer to the Student Judicial Services website at <http://deanofstudents.utexas.edu/sjs/> to access the official University policies and procedures on scholastic dishonesty as well as further elaboration on what constitutes scholastic dishonesty.

**Campus Safety** Please note the following recommendations regarding emergency evacuation from the Office of Campus Safety and Security, 512-471-5767, <http://www.utexas.edu/safety>:

- Occupants of buildings on The University of Texas at Austin campus are required to evacuate buildings when a fire alarm is activated. Alarm activation or announcement requires exiting and assembling outside.
- Familiarize yourself with all exit doors of each classroom and building you may occupy. Remember that the nearest exit door may not be the one you used when entering the building.
- Students requiring assistance in evacuation should inform the instructor in writing during the first week of class.
- In the event of an evacuation, follow the instruction of faculty or class instructors.
- Do not re-enter a building unless given instructions by the following: Austin Fire Department, The University of Texas at Austin Police Department, or Fire Prevention Services office.
- Behavior Concerns Advice Line (BCAL): 512-232-5050
- Further information regarding emergency evacuation routes and emergency procedures can be found at: <http://www.utexas.edu/emergency>.

## 7 Course Outline

1. Equity Securities and Portfolios.
  - Basic instruments and assumptions.
  - Risk, return, and review of statistics.
  - Markowitz Portfolio Theory.
  - The Capital Asset Pricing Model (CAPM).
  - Portfolio Performance and Market Efficiency.
  - Excel Assignment.
  - Problem Set on Section 1.

### **Midterm 1, Wednesday, February 19.**

2. Fixed-Income Securities.
  - Fixed-Income instruments and terminology.
  - Prices and yields.
  - The term structure of interest rates.
  - Duration and Convexity.
  - Fixed-Income portfolios.
3. Derivative Securities.
  - Derivative instruments and markets.
  - Forwards and Futures, including no-arbitrage pricing.
  - Options.
  - Option pricing.
  - Problem Set on Sections 2 and 3.

### **Midterm 2, Wednesday, April 2.**

- Swaps.
4. Applications to international finance.
    - Problem Set on Swaps and Section 4.

**Final Exam:** cumulative, with slight overweight in the material covered after the second midterm.