FBE 441: Investments

Instructor	**Professor Juhani Linnainmaa**
Office	HOH 702
E-mail	jlinnain@usc.edu
Class hours	Section 15360: Tuesday, Thursday: 2:00–3:50 pm at JKP 110
	Section 15362: Tuesday, Thursday: 4:00–5:50 pm at HOH 1
Office hours	Thursdays, noon–1:00 PM, or by appointment

Course description

This course is designed to provide a sound foundation for the fundamental concepts in investments. Students who master the course material will acquire the analytical tools and financial theory necessary for making investment decisions and understanding the paradigms by which financial securities are valued.

The course is designed to prepare students for more advanced courses on the covered topics. The course is highly quantitative and relies heavily on analytical tools and economic theory developed throughout. Students should be comfortable with probability, statistics, and regression analysis. Use of a spreadsheet package such as Excel will be vital for the homework assignments, saving time and aiding in understanding the material. Some use of calculus and matrix algebra will also be required.

Course requirements and grading

The course requirements are a Midterm exam, a Final exam, and six graded homework assignments. Grades will be assigned based on the following weights according to 2 schemes. Your overall course score will be calculated using the scheme that is most favorable to you.

Component	Scheme 1	Scheme 2
Homework	30%	30%
Midterm exam	30%	10%
Final exam	40%	60%

Other policies

Academic Integrity. I will strictly enforce the university rules on academic integrity:

"...The use of unauthorized material, communication with fellow students during an exam, attempting to benefit from the work of another student, and similar behavior that defeats the intent of an examination or other class work is unacceptable to the University. It is often difficult to distinguish between a culpable act and inadvertent behavior resulting from the nervous tensions accompanying examinations. Where a clear violation occurs, however, the instructor may disqualify the students work as unacceptable and assign a failing mark on the paper."

Students With Disabilities. Any student requesting academic accommodations based on a disability is required to register with Disability Services and Programs (DSP) each semester. A letter of verification for approved accommodations can be obtained from DSP. Please be sure the letter is delivered to me as early in the semester as possible. DSP is located in STU 301 and is open 8:30 am–5:00 pm, Monday through Friday. The phone number for DSP is (213) 740-0776.

Homework assignments

Six homework assignments will be given, which primarily consist of numerical problems and several applications to real data. The latter are designed to apply techniques learned in the course to real data in a similar manner to what might be applied in practice. Keep in mind that exam questions will be similar to the assigned homework problems.

You can use whatever statistics program you wish (Excel, Matlab, R, Stata,...) to minimize the time spent on calculations. We will use Excel in class due to its benefits in terms of visualizing data. In addition, I encourage you to discuss your assignments in groups, but I want everyone to turn in their individual write-up. Also, there are generally several ways to arrive at the answer, so be clever in your choice of methodology. Some methods are more time-consuming than others. **Your write-up should provide enough details so that it is possible to figure out how you arrived at the solution.**

Final exam schedule

Exam dates are in line with the university schedule. You need to reconfirm these dates closer to examinations (http://classes.usc.edu/term-20163/finals/). Rooms are to be determined.

Section	Date	Time
15360	Thursday, December 8, 2016	2–4 pm
15362	Thursday, December 8, 2016	4:30–6:30 pm

You must take your exam at the scheduled time.

Readings for the course

The textbook for the class is

Bodie, Zvi, Alex Kane, and Alan Marcus, Investments, McGraw-Hill Irwin, 9th or 10th Edition (BKM)

I use BKM to supplement the lecture slides. It is probably a good idea to start from the lecture and the slides, and then use the book to fill in any gaps and details. The book often approaches the same topics from a different angle. Please note that both the midterm and final exams will contain questions from the chapters that are listed in the syllabus.[1]

Lecture Notes, articles and problem sets will not be handed out in class. They will be available on Blackboard as Word or Pdf documents (http://blackboard.usc.edu). You are responsible for timely downloads of the materials.

Outline of topics

(*Bodie, Kane, and Marcus, 10th edition, chapter numbers are indicated in parentheses.*)

1. Risk and return (BKM 1, 2, and 5)

   - Real assets and financial assets
   - Historical rates of returns
   - "Asset pricing formula"

2. Fixed income (BKM 14–16)

   - Bond markets and interest rates
   - Bond portfolio management

3. Asset allocation (BKM 6–7)

   - Introduction to asset allocation
   - Portfolio mathematics and diversification
   - Portfolio theory and mean-variance analysis

4. Capital asset pricing model (BKM 9)

   - Derivation
   - Empirical performance

5. Practical asset allocation

6. Multifactor models and arbitrage pricing theory (BKM 10)

7. Behavioral finance (BKM 11–13)

   - Market efficiency and anomalies

---

[1]If you are interested in a career in finance or prefer an approach that is more quantitative/analytical than BKM, you might enjoy **Grinblatt, Mark and Sheridan Titman, Financial Markets and Corporate Strategy, McGraw-Hill Irwin, 2nd Edition, 2001.** This book is fully optional and will not be used in class.

- Individual investors and behavioral biases

8. Money management industry and performance evaluation (BKM 4, 24)

9. Derivatives (BKM 20–23)

   - Forwards and futures
   - Options
   - Binomial option pricing

Schedule (preliminary)

Week	Topics	Tuesday	Thursday	Notes
1	Risk and return; present value formula	8/23	8/25	
2	Fixed income	8/30	9/1	PS #1 due on 9/1
3	Introduction to asset allocation	9/6	9/8	
4	Portfolio mathematics	9/13	9/15	PS #2 due
5	Portfolio theory and mean-variance analysis	9/20	9/22	
6	Capital asset pricing model	9/27	9/29	PS #3 due
7	Review for midterm; **MIDTERM**	10/4	**10/6**	
8	Asset allocation in practice	10/11	10/13	PS #4 due
9	Multifactor models and arbitrage pricing theory	10/18	10/20	
10	Behavioral finance and market efficiency	10/25	10/27	PS #5 due
11	Anomalies	11/1	11/3	
12	Performance evaluation	11/8	11/10	
13	Forwards and futures	11/15	11/17	
14	Options	11/22	**No class**	
15	Options; review for final exam	11/29	12/1	PS #6 due