MARSHALL SCHOOL OF BUSINESS
University of Southern California

FBE 555: Investment Analysis and Portfolio Management

Prof. Christopher S. Jones Fall 2017

Course Syllabus

This syllabus describes the policies, procedures, and content of this course. Please read it.

Contact Information

Instructor: Christopher S. Jones
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Office hours: Tuesdays from 11:00am-noon,
Wednesdays from 2:00-3:00pm,
or by appointment

Though I check email frequently, I do not answer any questions related to course content by email. All questions about course content, including lectures, problem sets, past exams, etc., should be posted on the "General course content" discussion board in Blackboard. I will monitor this board regularly and try to reply to all of your questions in a timely manner. The purpose of this is to keep a level playing field and to encourage discussion. Of course, anything personal, like a question about an exam grade, should be discussed by email. When you write me, it is extremely helpful to me if you put "FBE555" in the subject line of your email.

Course Summary and Objectives

The primary objective of the course is to study the theory and empirical evidence relevant for investing, particularly in the context of portfolio management. The major topics will include:

- security markets and the investment industry
- optimal portfolio selection
- the relation between risk and return
- market efficiency

In one way or another, most of the course is geared towards the understanding and implementation of "modern portfolio theory," which is a general approach for maximizing the expected return of a

portfolio given a certain amount of risk. This approach is the basis of virtually all quant investing strategies and is widely used by traditional portfolio managers as well.

A secondary objective is to prepare you to do quantitative and statistical analysis in a broad range of settings. The majority of the course will be spent studying and testing mathematical models. Regression analysis is a tool that will be used throughout the course, and my goal is for you to become proficient in its use and interpretation.

Prerequisites and Expectations

Students are expected to have completed core courses in basic finance and statistics. You are assumed, for example, to know what common financial instruments are (as described in the 2nd chapter of the textbook), to be comfortable with present value calculations, and to be familiar with the CAPM and understand expected returns and present value.

The study of investments is inherently quantitative. Knowledge of basic statistics (means, covariances, regression, etc.) is critical, as these tools will be used repeatedly throughout the semester. In addition, problem sets may require the use of Excel, so familiarity with Excel will be helpful, though not necessary.

Lectures and Reading

The bulk of class time will consist of lectures. My lectures are designed to be a complement to the textbook rather than a substitute, and your comprehension of the material in my lectures will be severely handicapped if you do not do required reading before class.

The lecture notes that am providing are very far from a complete record of what I say in class. By themselves they will be insufficient for keeping up with the course. Rather, the notes will serve as an outline for developing the concepts in each lecture while still requiring active learning (attending lectures, taking notes, and asking questions).

Lecture notes and other printed material will be available either in Blackboard or on my own website, www.uscinvest.com. I will not bring handouts to class. You will need to check the announcements section of the course Blackboard page to stay up to date on what material is available for you to take.

Readings will most often come from the textbook. The text is Investments, by Bodie, Kane, and Marcus. The most recent edition (the 11th) is available in the bookstore. Note that the 10th edition is very similar, and you may be able to get a cheap used copy of it. Earlier editions are significantly different, however. If you use one of them or the international version, you do so at your own risk.

Other mandatory readings appear on the syllabus and will be downloadable from Blackboard. Other readings may occasionally be assigned "in real time." Most will be from finance websites, but some may be practitioner journal articles or documents created by me.

Finally, I will occasionally post online lectures to be viewed outside of class. Some of these are optional, while others will me mandatory.

Course Requirements and Grading

The course grade will be based on five problem sets, a midterm exam, a final, an investment contest report, and your course participation. Your course grade will be determined using the following formula:

Course score

= .20 × Group problem sets

+ .25 × Midterm exam

+ .35 × Final exam

+ .10 × Investment contest report

+ .10 × Course participation

Note that no letter grade will be assigned to any exam or assignment, though I will report the distribution of exam scores for the final and the midterm.

Problem Sets

There are five problem sets that are to be done in groups of up to five students. I expect these groups to be unchanged for the length of the semester. You *may* work individually, i.e., to form a "group" of one, but I strongly recommend that you work in a group. If you want to work in a group but are unable to find one, please use the Free Agents message board on the course Blackboard page. You may work with students from other sections.

All problem set scores are numbers between 0 and 1 and are not curved. Your problem set score is based on your best four scores out of the five problem sets. Failing to turn in a problem set results in a grade of zero for that problem set. (If you do this once for a problem set, it will be the score that is dropped.) You will receive full credit if you complete the problem set regardless of whether your answer is "correct."

At least one member of your group must have available for bringing to class a network-ready laptop computer that runs Microsoft Excel. In addition, both Solver and the Data Analysis tool must be installed in Excel, which effectively means that the laptop must run Windows. I will let you know in advance when bringing the laptop will be required.

All assignments and problem sets should be turned in by uploading them to my web site. A link will be provided in Blackboard and on the problem set assignment sheet. The name of your group should be part of your file name. The names of all members in your group should appear inside each submission.

Solutions will be available shortly after each assignment's due date. I strongly advise all students to read and understand these solutions.

At the end of the semester all students will be allowed to submit a form evaluating the contributions of their teammates. Penalties will be assigned to a student only if there is a consensus that his or her contributions were significantly lower than those of the rest of the team.

Exams

Both exams are closed book and closed notes. However, each exam will include a page with some of the longer formulas on it. These pages will be posted on Blackboard in advance of each exam.

For both exams, you will need a calculator that can raise numbers to arbitrary powers. Laptop computers and calculators with word-processing features are not permitted for use in an exam.

The final exam will be cumulative, though there will be some emphasis on the second half of the course.

Both the midterm and final grades are standardized (i.e. curved) using the mean and standard deviation from the class.

Students experiencing medical and family emergencies will be given an opportunity to take a makeup exam. The makeup will occur after the regular exam and will differ from the original exam. The time of the makeup will be at my discretion, and I reserve the right to ask for documentation of all excuses.

Investment contest report

In parts of the last two weeks of class we will be holding an in-class investment contest to see how well you have assimilated the content of the course. You will be given a set of data on mutual fund returns and holdings and asked to choose a portfolio that maximizes some notion of risk-adjusted return. In preparation of this game, you will be required to devise an investment strategy and to implement that strategy in an Excel spreadsheet. After the contest end, you will be asked to turn in that spreadsheet as well as a document (4-5 pages) that describes your strategy. This document does not need to discuss your performance in the contest, so you may prepare it in advance if you wish. Additional details will be given in a separate handout.

Class Participation

Course participation is required, but full credit can be earned in several ways. One is by answering questions (or asking good questions) in class. Another is by participating in online discussions on Blackboard. Participation in in-class trading and investment games is also important. Some course credit will be earned by submitting electronic responses to in-class surveys, but this along is insufficient to earn full credit.

Regrade Policy

Requests for an exam or problem set regrade must be submitted in writing no later than one week following the day the item was returned. For the regrade request, please give your name(s) and section along with a brief summary of why you think the grading was in error. Note that the entire exam or assignment may be regraded, so any regrade request could result in a lower grade.

Ungraded Practice Problems

I will post additional problem sets and their solutions on the course Blackboard page. These are designed to provide examples of computational and questions that might appear on an exam.

These problem sets will not be handed in, so I won't be grading them. I will be happy to discuss them in class, in office hours, or in the Blackboard discussion boards.

Technology Policy

All students are encouraged to bring devices that can access the internet to class. On an irregular basis I will ask you to respond to online polls. Any device (e.g., computer, smartphone, iPad) that can access the internet will be sufficient on most days. On some days I will also ask that you bring laptops to class. Please test your devices ASAP to see if you can get a connection in our classroom.

I ask that you do not use your devices for personal communication or web browsing. This is very distracting to me and to your classmates. I also ask that you do not make video recordings of my lectures, though I am fine with audio recordings made for personal use only.

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 their phone number is (213) 740-0776. For more information, visit dsp.usc.edu.

Emergency Preparedness/Course Continuity

In case of a declared emergency if travel to campus is not feasible, USC executive leadership will announce an electronic way for instructors to teach students in their residence halls or homes using a combination of Blackboard, teleconferencing, and other technologies.

Statement on Academic Integrity

USC seeks to maintain an optimal learning environment. General principles of academic honesty include the concept of respect for the intellectual property of others, the expectation that individual work will be submitted unless otherwise allowed by an instructor, and the obligations both to protect one's own academic work from misuse by others as well as to avoid using another's work as one's own. All students are expected to understand and abide by these principles. *SCampus*, the Student Guidebook, (www.usc.edu/scampus) contains the University Student Conduct Code (see University Governance, Section 11.00), while the recommended sanctions are located in Appendix A.

Students will be referred to the Office of Student Judicial Affairs and Community Standards for further review, should there be any suspicion of academic dishonesty. The Review process can be found at sjacs.usc.edu. Failure to adhere to the academic conduct standards set forth by these guidelines and our programs will not be tolerated by the USC Marshall community and can lead to dismissal.

Important Dates

8/22/2016	first day of class
9/5/2016	Labor Day (no class)
9/14/2016	problem set 1 due
9/28/2016	problem set 2 due
10/12/2016	problem set 3 due
10/16/2016	midterm exam
11/2/2016	problem set 4 due
11/16/2016	problem set 5 due
11/22/2016	no class
11/29/2016	last class
11/30/2016	investment contest report due
12/11/2016	final exam

This calendar also appears in Blackboard.

Course Outline

The following is a tentative outline of the topics covered in the course. All topics are subject to change, and additional readings may be added. Each # roughly corresponds to 1:20 of class time.

#	Topics	Required reading
1	Course Introduction • Syllabus	BKM chapter 1
2-3	Investment funds • Mutual funds, ETFs, and hedge funds • Benefits and costs of fund investing • Choosing a fund type	BKM chapter 4
4-5	Historical returns on major asset classes • Risk and reward of stocks and bonds • The normal distribution • Predicting asset returns	BKM chapter 5 (sections 1 to 8) Vanguard article
6-8	Trading and markets • Exchanges • Market and limit orders • Short selling and margin • Trading simulation 1	BKM chapter 3 Trading game instructions
9	Optimal portfolios with one risky asset • Mean-variance utility • Leverage and the capital allocation line	BKM chapter 6
10-11	Optimal portfolios with two risky assets • Combining risky assets • Stock-bond example • Risk parity	BKM chapter 7 (sections 1-3) Qian article
12-13	Optimal portfolios with many risky assets • Naive diversification • The minimum variance frontier	BKM chapter 7 (sections 4 and 5)
14	Midterm Review	
15	Midterm	

16-18	CAPM and Factor models • Estimation error • The market model • The CAPM • 130/30 strategies • Investment mini-contest	BKM chapters 8 and 9
19-21	Evidence on the CAPM • The empirical security market line • Size, value, and momentum • The Fama-French model	BKM chapter 13 (sections 1-3) Berger, Israel, and Moskowitz article
22-24	The efficient market hypothesis • Versions of the hypothesis • Event studies • Behavioral finance	BKM chapters 11 and 12 (section 1)
25-26	In-class investment contest	
27	Final review	