University of Southern California
Department of Economics

ECON 577
Foundations of Financial Economics

Steve Sapra, Ph.D., CFA Fall 2023

Course Syllabus

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

Contact Information

Instructor: Steve Sapra
Class: ECON 557 (26202D)
Office: KAP 364A
Telephone: TBD
Email: ssapra@usc.edu
Office hours: MW 10:30-11:30 or by appointment

TA Office: TBA

Course Objective

The objective of the course is to study the theory of asset pricing and to gain a deep understanding of the major topics in empirical finance. After completing this course, students will have a broad understanding of bond pricing, equity valuation models, portfolio optimization and option pricing theory. Additionally, because the course has a programming component, students will learn to apply their skills through the use of modern programming languages such as Python. The course is structured such that the first half is largely theoretical with the remainder focusing on advanced applied issues.

We will utilize mathematics intensively in this course. This includes the use of calculus, linear algebra, statistics, and econometrics. To be successful in this class, you will need to have a solid understanding of these concepts. If you do not have formal training in calculus and statistics, you should not take this course. I will not be doing a math & stats "refresher" section for those who are rusty.

In order to maximize the real world experience of this course, time permitting I will often spend the beginning of each class discussing current events in markets. This may be something as simple as discussing what has been happening with equities, interest rates, or currencies or I may go deep into a major market development.

Textbooks
There are four required textbooks for this course. You're free to use whatever edition you want, but note that homework will largely be assigned from the text, so you need to make sure that you do the correct homework questions. Although it's a lot of books, none of them should be that expensive. Furthermore, if you plan to work in industry, these books are indispensable as references. The material from Hull should be able to be covered without the book if you wish to avoid the extra cost of purchasing it. The textbooks are:

Campbell, John Y., *Financial Decisions and Markets: A Course in Asset Pricing*, 2017
https://www.amazon.com/Financial-Decisions-Markets-Course-Pricing/dp/0691160805/ref=sr_1_1?dchild=1&keywords=john+y+campbell&qid=1606250813&s=books&sr=1-1

Shreve, Steven E., *Stochastic Calculus for Finance I: The Binomial Asset Pricing Model*, 2005.
https://www.amazon.com/Stochastic-Calculus-Finance-Binomial-Springer/dp/0387249680/ref=sr_1_2?dchild=1&keywords=shreve+stochastic+calculus+1&qid=1606250698&s=books&sr=1-2

Shreve, Steven E., *Stochastic Calculus for Finance II: Continuous-Time Models*, 2010.
https://www.amazon.com/Stochastic-Calculus-Finance-II-Continuous-Time/dp/144192311X/ref=sr_1_2?dchild=1&keywords=shreve+stochastic+calculus+1&qid=1606250787&s=books&sr=1-2

Hull, John C., *Options, Future, and Other Derivatives*, 10th edition
https://www.amazon.com/Options-Futures-Other-Derivatives-10th/dp/013447208X/ref=sr_1_1?keywords=options+futures+and+other+derivatives+john+hull+10th+edition&qid=1661105676&sprefix=hull+options+futures+and+other+derivatives+10th%2Caps%2C169&sr=8-1

Lectures and Reading
The bulk of class time will consist of lectures. My lectures will largely follow the textbooks although I strongly encourage you to attend lectures and read the sections before class. Doing both will materially improve your understanding and help you to retain the course material. We are covering a lot of material over the semester. You will need to read the book, re-read the book, attend lectures, and do homework in order to maximize your chances of success in the course.

I use very little PowerPoint for my lectures. I believe that simply going over slides lacks the necessary detail that students need to master the material. Rather, I will write detailed notes on the board. Because most of the lectures are not PowerPoint-based, **lecture notes will not be made available to students**. If you miss a class, you'll need to reach out to one of your fellow students to obtain the notes for that class.

Paper Presentation
Students will be required to present a finance paper to the class. Depending on the number of students enrolled, I'll ask you to assemble in groups of 2-5 individuals and your group will be responsible for doing a formal paper presentation. I have pre-selected the papers and will assign them randomly to each group. Your presentation should be no more than 30 minutes and should use Powerpoint. You are expected to go "deep" into the paper, including a detailed discussion of the model and the empirical results. You should be prepared to answer tough questions from both the professor and your classmates. Your grade will reflect the quality of the presentation and how well the content is conveyed. All papers will be available in Blackboard for everyone to read.

Course Requirements and Grading
The course grade will be based on homework, the paper presentation, a midterm exam, and a final exam. Your course grade will be determined using the following weights:

Homework	15%
Paper Presentation	15%
Midterm exam	30%
Final exam	40%

I will usually assign homework at the end of every class. **I will only be collecting homework four times and I will not preannounce which homework assignments will be collected.** You are responsible for doing all homework assignments whether I collect it or not. Your overall homework grade will be based on the four assignments which I choose to collect. Any collected homework will be accepted at the beginning of class only. Homework solutions will be posted right after class to Blackboard for all assignments whether collected or not.

The final exam is cumulative, so a good score on the final is indicative of comprehension of all the course material. For students who score better on the final exam than the midterm, I will shift the weight from 30/40 to 20/50. Note that there will be no extra credit given. Other than the course grade, no letter grades will be assigned, although I will report the distribution of the midterm exam scores.

Exams
Both exams are closed book, though you will be allowed a single double-sided 8½ × 11 page of notes for the midterm and the final. Do not bring two pages of notes to an 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.

Class Participation
While there is no grade for class participation, I very much appreciate an interactive class with interesting thoughts and questions, whether we're covering current topics or discussing a theoretical model. Please don't be shy.

Class Holidays
From time to time it the class may fall on an official USC holiday. For these classes which overlap with holidays, I will generally host a makeup video-based lecture which will also be recorded. However, I reserve the option to make up the class via other formats such as additional reading or projects.

Textbook Readings and Important Dates

The schedule below is intended to be only a guide for the semester. I may modify the content covered or scheduled dates of any items below. This includes the addition and/or removal of content. All changes will be announced in Blackboard.

Week 1	Choice Under Uncertainty	Campbell Ch 1
8/21/2023		
Week 2	Static Portfolio Choice	Campbell Ch 2
8/28/2023		
Week 3	Static Equilibrium Asset Pricing	Campbell Ch 3
9/4/2023	*Monday Holiday - Labor Day*	
Week 4	Static Equilibrium Asset Pricing	Campbell Ch 3
9/11/2023	The Stochastic Discount Factor (through 4.3.2)	Campbell Ch 4
Week 5	The Stochastic Discount Factor (through 4.3.2)	Campbell Ch 4
9/18/2023	Present Value Relations	Campbell Ch 5
Week 6	Present Value Relations	Campbell Ch 5
9/25/2023	*Midterm Review*	
Week 7	**Midterm Exam**	
10/2/2023	Interest Rates and Futures	Hull Ch 4,5,6
Week 8	Interest Rates and Futures	Hull Ch 4,5,6
10/9/2023	Swaps and Options	Hull Ch 7,10,11
Week 9	Swaps and Options	Hull Ch 7,10,11
10/16/2023	The Binominal No-Arbitrage Pricing Models	Shreve I, Ch 1
Week 10	The Binominal No-Arbitrage Pricing Models	Shreve I, Ch 1
10/23/2023	Probability Theory on Coin Toss Space	Shreve I, Ch 2
Week 11	Probability Theory on Coin Toss Space	Shreve I, Ch 2
10/30/2023	Stochastic Calculus & The Black-Scholes Formula	Shreve II, Ch 3 & 4
Week 12	Stochastic Calculus & The Black-Scholes Formula	Shreve II, Ch 3 & 4
11/6/2023		
Week 13	The Black-Scholes-Merton Model	Hull Ch 15
11/13/2023	The Greek Letters	Hull Ch 19
Week 14	Options on Stock Indices and Currencies	Hull Ch 17
11/20/2023	*Wednesday No Class - Thanksgiving Recess*	
Week 15	Household Finance	Campbell Ch 11
11/27/2023	*Finishing Up + Review*	

Statement on Academic Conduct and Support Systems

Academic Conduct:

Plagiarism – presenting someone else's ideas as your own, either verbatim or recast in your own words – is a serious academic offense with serious consequences. Please familiarize yourself with the discussion of plagiarism in SCampus in Part B, Section 11, "Behavior Violating University Standards" policy.usc.edu/scampus-part-b. Other forms of academic dishonesty are equally unacceptable. See additional information in SCampus and university policies on scientific misconduct, policy.usc.edu/scientific-misconduct.

Support Systems:

Student Health Counseling Services - (213) 740-7711 – 24/7 on call
engemannshc.usc.edu/counseling
Free and confidential mental health treatment for students, including short-term psychotherapy, group counseling, stress fitness workshops, and crisis intervention.
National Suicide Prevention Lifeline - 1 (800) 273-8255 – 24/7 on call
suicidepreventionlifeline.org
Free and confidential emotional support to people in suicidal crisis or emotional distress 24 hours a day, 7 days a week.
Relationship and Sexual Violence Prevention Services (RSVP) - (213) 740-4900 – 24/7 on call
engemannshc.usc.edu/rsvp
Free and confidential therapy services, workshops, and training for situations related to gender-based harm.

Office of Equity and Diversity (OED) | Title IX - (213) 740-5086
equity.usc.edu, titleix.usc.edu
Information about how to get help or help a survivor of harassment or discrimination, rights of protected classes, reporting options, and additional resources for students, faculty, staff, visitors, and applicants. The university prohibits discrimination or harassment based on the following protected characteristics: race, color, national origin, ancestry, religion, sex, gender, gender identity, gender expression, sexual orientation, age, physical disability, medical condition, mental disability, marital status, pregnancy, veteran status, genetic information, and any other characteristic which may be specified in applicable laws and governmental regulations.

Bias Assessment Response and Support - (213) 740-2421
studentaffairs.usc.edu/bias-assessment-response-support
Avenue to report incidents of bias, hate crimes, and microaggressions for appropriate investigation and response.

The Office of Disability Services and Programs - (213) 740-0776
dsp.usc.edu
Support and accommodations for students with disabilities. Services include assistance in providing readers/notetakers/interpreters, special accommodations for test taking needs, assistance with architectural barriers, assistive technology, and support for individual needs.

USC Support and Advocacy - (213) 821-4710
studentaffairs.usc.edu/ssa
Assists students and families in resolving complex personal, financial, and academic issues adversely affecting their success as a student.
Diversity at USC - (213) 740-2101

diversity.usc.edu
Information on events, programs and training, the Provost's Diversity and Inclusion Council, Diversity Liaisons for each academic school, chronology, participation, and various resources for students.

USC Emergency - UPC: (213) 740-4321, HSC: (323) 442-1000 – 24/7 on call
dps.usc.edu, emergency.usc.edu
Emergency assistance and avenue to report a crime. Latest updates regarding safety, including ways in which instruction will be continued if an officially declared emergency makes travel to campus infeasible.

USC Department of Public Safety - UPC: (213) 740-6000, HSC: (323) 442-120 – 24/7 on call
dps.usc.edu
Non-emergency assistance or information.