Bus 35000: Investments

Winter 2021

Professor Michael Weber

E-mail	Michael.Weber@chicagobooth.edu
Lectures	Fr 1:30pm–4:30pm, HC C08 (Sec. 01)
	Fr 6:00pm–9:00pm (Sec. 81)
	Sat 1:30pm–4:30am (Sec. 85)
Class Format	Online
Office Hours	by appointment (Please contact Kari.Greenswag@chicagobooth.edu)

Teaching Assistant Nishant Vats

E-mail	nvats@chicagobooth.edu
Skype	please email Nish to set up skype office hours
Exercise Sessions	Thu, 6:00pm–7:00pm
	Note: Exercise sessions start in week 3
Review Sessions	Sun, 2/14, 10:30am–12:00pm
	Sun, 3/14, 10:30am–12:00pm
	Note: no Tuesday sessions in weeks following the Review sessions
Office hours	Thursday 12:45 pm – 1:30pm
	or by appointment (Skype)

Course Description

This course offers the financial theory and quantitative tools necessary for understanding how stock, bond, and option prices are determined, and how financial assets are used for investment decisions. Topics covered include modeling the relation between risk and return, optimal portfolio selection based on mean–variance analysis, asset pricing models, money management, practical asset allocation, and more. We will analyze equities, fixed income securities (bonds), and derivative securities (options, futures, swaps).

The course is quantitative and challenging. Rather than delving into the details of current practice, it takes a rigorous and critical approach to the process of investing. The aim is to provide the students with a lasting conceptual framework in which to view and analyze investment decisions. At the same time, the course will discuss alternative philosophies of investing, and relate the material to current financial news and to problems relevant to the practitioner.

Prerequisites

Business 30000 (Financial Accounting), 33001 (Microeconomics), and either 41000 (Business Statistics) or 41100 (Applied Regression Analysis). The course material requires students to be comfortable with statistics and probability theory, linear and matrix algebra, calculus, and microeconomics. Familiarity with a spreadsheet package such as Excel is vital.

Office Hours, Review Sessions

My office hours are by appointment. Please contact my assistant Kari Greenswag (Kari.Greenswag@chicagobooth.edu) to arrange them.

If you have questions about the class material, please feel free to contact me. For questions regarding the projects and homework assignments, you should first contact the teaching assistant. The teaching assistant will hold weekly review sessions starting in the **third** week of classes. The details will be provided on the first day of class. In those sessions, the teaching assistant will first go over some relevant problems (selected by me), and then answer your questions. The sessions are optional, but strongly recommended for those with questions about the course material, assignments, projects, and exams.

Course Web Page

All materials for the course are on the course's Web page on the University's Canvas system

`http://canvas.uchicago.edu`

To access the web page, you need the University's CNetID and password. In case you don't have these yet, you can claim them at http://cnet.uchicago.edu.

Grading

The course requirements are a Midterm exam, a Final exam, seven graded Homework assignments, and one Case write-up. The midterm exam and the problem sets are optional, in that it is only added to the total score if it increases the average. This places the added weight on the final. This will be done automatically by the computer, so there is no need to contact me about it.

Weights on the various components of the final grade are as follows:

Class Participation	5%	5%	5%	5%
DFA Case Write-Up	10%	10%	10%	10%
Midterm	25%	25%	0%	0%
Problem Sets	20%	0%	20%	0%
Final Exam	40%	60%	65%	85%

Class participation is very important. Many of you have useful professional experience that can undoubtedly benefit our class discussions. Also, questions usually lead to a better understanding of the material for everyone. Please do not hesitate to share your experience or questions with the rest of the class!

Zoom Etiquette

There is an expectation that students in this course will be actively engaged and on camera while on Zoom. If a student requires an exception, they will need to reach out to the instructor directly.

Recording and Deletion Policies for Academic Year 2020-1

The Recording and Deletion Policies for the current academic year can be found in the Student Manual under Petitions, Audio & Video Recording on Campus.

- Do not record, share, or disseminate any course sessions, videos, transcripts, audio, or chats.
- Do not share links for the course to those not currently enrolled.
- Any Zoom cloud recordings will be automatically deleted 90 days after the completion of the recording.

Exams

The Midterm exam will be held during the first half of the class on Week 6; more precisely: **Fr February 19, 1:30–3:00pm** (Sec. 01), **Fr February 19, 6:00–7:30pm** (Sec. 81), or **Sat February 20, 1:30–3:00pm** (Sec. 85). The Final exam will be held in the 11th week; more precisely: **Fr March 19, 1:30–4:30pm** (Sec. 01), **Fr March 19, 6:00–9:00pm** (Sec. 81), or **Sat March 20, 1:30–4:30am** (Sec. 05).

Exams are *closed-notes* but you can bring with you a "cheat sheet". For the midterm the cheat sheet cannot exceed 2 single-sided A4 pages, while for the final it cannot exceed 4 single-sided A4 pages. Laptops and cell phones are not allowed.

You may request a re-grade on any exam. Each re-grade request must be accompanied by a concise written explanation of the request and submitted to me within one week after I distribute graded exams. The whole exam will be re-graded, so your score can either increase or decrease as a result.

All exams require a calculator (not necessarily a financial calculator) and pen or pencil.

You will be able to switch sections due to internship-related considerations. If necessary, please contact Kari Greenswag. Unfortunately, no early exams are possible.

Homework Assignments and Case Write-Up

There will be six homework assignments, which consist of problems and several applications to real data. The latter are designed to apply techniques learned in the course to real data in a manner similar to what you can expect to see in practice. Keep in mind that exam questions will be similar to the assigned homework problems. In determining your total grade for the homework, I will only count **your best five problem sets**. Answers to homework assignments will be posted on the web the day they are due. Hence, **NO LATE HOMEWORKS** will be accepted.

There will be a case write-up in this course separate from the homework assignments. I will provide details of the case write-up later.

You may do the homework problems and the case write-up in groups **up to FOUR people**. (Groups with more than four people will not receive credit.) The case write-up should not exceed five typed pages in a human readable font size (I have bad vision;)).

Honor Code

Students in this course are required to adhere to the standards of conduct in the Honor Code and Standards of Scholarship. Each student shall sign the following pledge on each exam: "I pledge my honor that I have not violated the Honor Code during this examination." Except for members of your (current) study group, you should not discuss the problems, cases, or exams with other members of this or any other class, or with former BUS 35000 students. In the future, you should not discuss the problems and cases with students then taking BUS 35000. If you are in doubt about whether something is acceptable under the honor code, you should not hesitate to ask me.

Accommodations For Disabilities

The University of Chicago is committed to ensuring the full participation of all students in its programs. If you have a documented disability (or think you may have a disability) and, as a result, need a reasonable accommodation to participate in class, complete course requirements, or benefit from the University's programs or services, please contact Student Disability Services as soon as possible. To receive a reasonable accommodation, you must be appropriately registered with Student Disability Services. Please contact the office at 773-702-6000 or disabilities@uchicago.edu, or visit the website at disabilities.uchicago.edu. Student Disability Services is located at 5501 S. Ellis Avenue.

If you have an approved accommodation from Student Disability Services that you plan to use in this course, please contact Academic Services (AcademicServices@lists.chicagobooth.edu) as soon as possible. Academic Services will provide support to you and your instructor and coordinate the details of your accommodations on your behalf.

Course Materials

- **Required Text**

  1. Bodie, Zvi, Alex Kane, and Alan Marcus, *Investments*, McGraw-Hill, 11th or 12th Edition (**BKM**).

- **Recommended Texts**

  1. Malkiel, Burton, *A Random Walk Down Wall Street*, Norton, 10th Edition, 2010 (**RWDWS**);

  2. Siegel, Jeremy, *Stocks for the Long Run*, McGraw-Hill, 4th Edition, 2008 (**SLR**).

  The recommended texts will not be explicitly employed in the course, but provide additional insight into some of the topics covered.

- **Online Course Packet**

  The (online) packet contains the syllabus and some relevant articles from practitioner and academic journals as well as the case studies for the class. With the exception of the cases, the rest of the material in the course packet is mostly aimed at students who want to obtain a more in-depth and hands-on understanding of Investments.

- **Lecture Slides and Handouts**

  I will upload the lecture slides at the latest Thursday 4 pm. The class notes and the assigned material should be read before class, so that you can come prepared with questions about the material. The notes contain an outline of the course discussion and some detail on the topics covered. However, much of the class discussion will add value to the notes and texts. Hence, it is imperative that students attend the course and participate in the discussion. Simply reviewing class notes and text material will not be sufficient to succeed in this course.

Course Outline and Readings

This an *approximate* schedule of topics that I will cover. You should read the corresponding material in the text *prior* to the lecture. "BKM" refers to the book by Bodie, Kane and Marcus; "RWDWS" refers to the book by Malkiel; and "SLR" refers to the book by Siegel. Unless otherwise stated, the listed articles are included in the course packet. Required readings are denoted by **R** and optional readings are denoted by **O**.

Week One – *Risk and Return; Asset Pricing* (Jan 15, 16)

- Course Outline and Introduction
- Overview of Financial Markets
- Risk and Return
- Asset Pricing and the Present Value Formula
  - BKM, chapters 1, 2, 3, 5 (**R**: all)
  - Dimson, Marsh, and Staunton, *Risk and Return in the* 20^{th} *and* 21^{st} *Centuries*, Business Strategy Review, 2000 (**O**)
  - RWDWS, chapters 3, 13 (**O**)
  - SLR, chapters 1, 2 (pp. 23–30), 6, 7, 8, 9 (**O**)

Week Two – *Fixed Income Securities, the Term Structure of Interest Rates, and Bond Portfolio Management* (Jan 22, 23)

- Overview of fixed Income Securities
- Bond Prices and Yields
- Theories of the Term Structure
- Forward rates

- BKM, chapters 14, 15, 16 (**R**: all)

Week Three – *Asset Allocation: Modern Portfolio Theory Part 1* (Jan 29, 30)

****Problem Set #1 Due ** (beginning of class)**

- Risk and Risk Aversion
- Asset Allocation
- Portfolio Mathematics
  - BKM, chapters 6 (**R**: all)
  - RWDWS, chapter 8 (**O**)
  - SLR, chapter 2 (pp. 30–36) (**O**)

Week Four – *Asset Allocation: Modern Portfolio Theory Part 2* (Feb 5, 6)

****Problem Set #2 Due ** (beginning of class)**

- Portfolio Theory and Mean-Variance Analysis
- Diversification
- The Capital Asset Pricing Model (CAPM)
- Applications of CAPM
- The Harvard Management Company
  - BKM, chapters 7, 9 (**R**: all)
  - Light, *Harvard Management Company*, Harvard Business School Case, 2001 (**R**)
  - Mullins, *Does the Capital Asset Pricing Model Work?*, Harvard Bus. Review, 1982 (**O**)

Week Five – *Practical Asset Allocation and Arbitrage Pricing Theory* (Feb 12, 13)

****Problem Set #3 Due** (beginning of class)**

- The Capital Asset Pricing Model (CAPM)
- Applications of CAPM
- Multifactor Models and Arbitrage Pricing Theory
- The Fama & French 3-Factor Model
  - BKM, chapter 10 (**R**)
  - RWDWS, chapter 9 (**O**)
  - Fama and French, *The Cross-Section of Expected Stock Returns*, Journal of Finance, Jun. 1992 (**O**)

Week Six – *Midterm; Market Efficiency and Anomalies* (Feb 19, 20)

****Midterm Exam**** (first half of class)

- The Efficient Market Hypothesis
- Market Predictability and Random Walks
- Market Efficiency: Event Studies
- Market Anomalies
- Momentum, Reversals and Other Price Patterns
- The Rational vs. Behavioral Debate
- Efficiency and Arbitrage
  - BKM, chapter 11, 12, 13 (**R**: all)

Week Seven – *Derivatives: Forwards, Futures* (Feb 26, 27)

****Problem Set #4 Due** (beginning of class)**
****Case Write-up for DFA due** (beginning of class)**

- Derivatives Markets
- Forwards
- Futures
  - BKM, chapters 20, 22, 23 (**R**),

Week Eight – *Option Valuation: Part 1* (Mar 5, 6)

****Problem Set #5 Due** (beginning of class)**

- Derivatives Markets
- Binomial Option Pricing
  - BKM, chapters 20, 21 (**R**: all)
  - SLR, chapter 15 (**O**)

Week Nine – *Options Part2, and Hedge Funds* (Mar 12, 13)

****Problem Set #6 Due** (beginning of class)**

- The Black–Scholes Formula
- The Money Management Industry
- The Hedge Funds Industry
  - Black, *How We Came Up with the Option Formula*, Journal of Portfolio Management, 1989 (**O**)
  - Gladwell, *Blowing Up: How Nassim Taleb Turned the Inevitability of Disaster into an Investment Strategy*, New Yorker, Apr.22, 2002 (**O**)
  - Peltz, *From Harvard to Hedge Funds*, Bloomberg Markets, Apr. 2004 (**O**)

- Lewis, *How the Eggheads Cracked*, New York Times Magazine, Jan.24, 1999 (**O**)
- Edwards, *Hedge Funds and the Collapse of Long-Term Capital Management*, Journal of Economic Perspectives, 1999 (**O**)
- SLR, chapters 11, 12, 13, 14 (**O**)

Week Ten – *Final Exam* (Mar 19, 20)

****FINAL EXAM****