UNIVERSITY OF PENNSYLVANIA
The Wharton School

Investment Management — Course Syllabus
Professor Stambaugh — Spring 2022

THIS PUBLIC VERSION OF THE SYLLABUS INCLUDES A COMPREHENSIVE COURSE OUTLINE. STUDENTS IN THE COURSE RECEIVE A SYLLABUS WITH FURTHER DETAILS ABOUT CLASS MEETINGS, ASSIGNMENTS, PROJECTS, OUTSIDE SPEAKERS, AND TEACHING ASSISTANTS.

Course Description

The course undertakes a rigorous study of concepts and evidence relevant to investment management. Topics include asset allocation, diversification, long-short strategies, factor models, long-horizon investing, portfolio optimization, sustainable (ESG) investing, hedge funds, mutual funds, behavioral finance, performance evaluation, trading, and simulation. The course deals very little with security valuation, i.e., "equity research" and its associated "discretionary" investing.

The prerequisites for are Fin 100 and Stat 101–102. (Stat 102 may be taken concurrently with this course). Given that investment management requires one to analyze and deal effectively with uncertainty, a good grounding in statistics is essential, and familiarity with statistics should extend through multiple regression, covariance, and correlation.

Purchases

1. *Investments*, by Zvi Bodie, Alex Kane, and Alan J. Marcus (12th ed.), McGraw-Hill. An electronic version of the book is available for purchase or rent at the McGraw-Hill website, https://www.mheducation.com/highered/product/investments-bodie-kane/M9781260013832.html. The university bookstore (which will ship) is renting the hardback for $70 (ISBN # 9781260013832) and selling the loose-leaf for $80 (ISBN #: 9781266272066). Solutions to assigned chapter-end problems are available to registered students via the course Canvas site.

2. *Efficiently Inefficient*, by Lasse Heje Pedersen, Princeton University Pres. Electronic versions of the book are available, and the university bookstore is selling print copies. Downloadable exercises are at http://docs.lhpedersen.com/EfficientlyInefficient_Exercises.pdf. (Solutions as well as the supplementary exercise materials are available to registered students via the course Canvas site.)

3. Cases available electronically from Study.net via Canvas.

Grading

Course grades will be based on two exams, four project write-ups, quizzes in many weeks, and class participation:

	Percent
Exam 1 (**Feb. 21**)	25
Exam 2 (**Apr. 25**)	25
Project write-ups	20
Weekly quizzes	20
Class participation	10
Total	100

Team sign up

At the beginning of the course, students may form teams of up to four members who may collaborate on the required project write-ups. Students may also find these teams useful as study groups in working through course content and preparing for class discussions. Members of a team may be registered for different sections of the course. Team sign up is via Canvas. (Non-Wharton students who are enrolled in the course but do not yet have a Wharton computing account, required for Canvas, can establish one by visiting http://accounts.wharton.upenn.edu.) Given health and safety considerations associated with the pandemic, I will allow individual students to submit project write-ups and will not require they join a team, but team membership is strongly encouraged, and I am happy to assist in team formation.

Projects

There are four projects, with due dates on **January 26**, **February 16**, **March 23**, **and April 27**. Students working in a team on a project should submit one write-up per team, with all team members' names displayed on the first page. Write-ups should be submitted on Canvas by **9:00 AM on the due date** to avoid lateness penalties. Project assignments are posted on Canvas.

Case discussions

A significant portion of the class participation grade is based on case discussions. I may cold-call occasionally but generally expect students to volunteer comments. I will post on Canvas a few pertinent questions about the case. These questions are not intended to be a comprehensive summary of the issues that could arise during the case discussion, but I hope they will be useful when thinking about the case and in stimulating discussion. Written answers are not submitted.

Quizzes

I will post in many weeks (nine, tentatively) a quiz to be completed on Canvas by midnight Friday (Eastern time) of that week. Each quiz is taken in a 20-to-30-minute window, begun at any time chosen by each student after I post the quiz earlier in the week. (I will send a notification of each quiz posting.)

Exams

Each of the two exams will be 90 minutes. Exam 2 is not a final exam, as it is confined to topics covered after Exam 1. Much of the course knowledge is cumulative, however, such that fully understanding issues addressed later in the course requires mastery of earlier material. For either exam, a make-up is allowed only for serious illness or emergencies and will be administered during the finance department's designated date for make-up exams, which generally occurs early in the following semester.

Given the uncertainty about what health and safety conditions will prevail around exam dates, the feasibility of an in-class exam for all students is accordingly uncertain. I will announce closer to each scheduled exam date whether the exam will be held in the classroom during the scheduled meeting or instead administered online. If held in the classroom, an exam will be closed book, but you may bring one 8½ × 11 inch "cheat sheet" (two-sided). If administered online, an exam will be open book but with all collaboration prohibited.

My availability

I welcome students to see me outside of class to discuss any aspect of the course. My scheduled office hours, when students may drop in via Zoom, are Tuesdays, 8:00–10:00am, but I am available by appointment at other times. My e-mail is stambaugh@wharton.upenn.edu.

COURSE OUTLINE

I. Foundations: Portfolio return, risk, asset allocation, performance evaluation
   a. Returns and risk
   b. Stock-cash positions; using return swaps and futures
   c. Beta; hedging
   d. Portfolio diversification, time-varying volatility
   e. Alpha; long-short; margin and leverage
   f. Portfolio opportunities and selection
   g. Portfolio optimization and asset allocation
   h. Refining optimization: Black-Litterman model
   i. Performance evaluation and attribution

*** Exam 1 ***

II. Investment strategies: Exploiting potential sources of performance
   a. Multiple return factors; size and value
   b. Behavioral approaches
   c. Information ratio and active allocation; long-short quantitative strategies
   d. Implementing strategies; trading costs; combining value and momentum
   e. Hedge funds; liquidity; arbitrage
   f. Carry trades
   g. Mutual funds – performance and scale
   h. Sustainable (ESG) investing

III. Long-run investment issues
   a. Equity premium
   b. Shortfall risk and options/insurance
   c. Mean reversion and the life cycle
   d. Pension funds

*** Exam 2 ***

IV. Active management's past and future