Student-Managed Investments

FINA 772

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1. Course Description

The course will provide students with hands-on experience in investment analysis as they manage a real portfolio. It will expose students to the decision-making in the design of a portfolio management process, especially with respect to asset allocation, security selection, and risk management.

2. Pre-requisites

(1) Requirements

Enrollment in this course requires a special permission from the instructor. Students must complete FNA762 before enrolling in this course. Familiarities with financial statement analysis or/and strong quantitative skills (especially for students with business analytics concentration) are also required.

(2) Selection of Students

The course is limited only to students with strong background and genuine interests in investments and scientific methods. Students will apply for admission to the course by submitting a resume, a list of elective courses taken, and potentially sitting for an interview, and the instructor will select the qualifying participants. Selection will be based on the student’s academic background, career goals, prior finance experiences, and overall motivation.
3. Course Overview

(1) Purpose

The objective of this course is to provide students with hands-on experience in investment research and portfolio management. To achieve this objective, students in this course will form an investment team that makes investment choices, subject to the instructor’s approval, in the management of funds in a Business Partnership Foundation (BPF) account. The team reports to the Finance and Investment Committee of the BPF.

The course will combine classroom pedagogy and out-of-class research, which will provide students with practical experience in an area that is of considerable interest to both students and their prospective employers.

(2) Hands-on Experience in Analytics

The course will manage the BPF fund very “actively” in a sense that the portfolio may deviate a lot from passive stock market indexes (e.g. S&P 500, Russell 3000, Wilshire 5000, MSCI World Equity Index).

One of the main objectives of the active management is to see if students can find analytical insights and data to predict the firm’s future revenue growth and operational efficiency beyond what other investors have already incorporated into stock prices. Another important objective of the active management is to see if students can achieve superior reward-to-risk in the portfolio by actively managing the portfolio risk.

The course will also discuss how one would want to manage the portfolio with the arrival of new information and the uncertainty surrounding it. Students will examine various data sources to develop forecasting models, test their predictions through statistical analysis, simulations, and make decisions in response to new information.

Along the way, students will face real-time decision problems for which textbooks and lecture notes provide little guidance. These instances provide valuable opportunities for students to apply their analytical insights in making difficult team decisions under substantial uncertainty and time pressure.
To make the portfolio management process prudent and academically relevant, the course promotes scientific methods and evidence-based discussions in portfolio decision making. It strives to lessen the impact of subjective opinions and biases by emphasizing rules over judgments in portfolio decision making.

The course discussion will emphasize the soundness/sensibility of investment hypotheses, sample selection, and empirical methods, as well as on the consistency/robustness of out-of-sample empirical evidence. The course will seek to blend security valuation (return forecasting) analytics with portfolio analytics (e.g. risk attribution, portfolio optimization) under practical constraints (as set forth in the investment policy).

In sum, FINA772 will offer a practical experience in professional portfolio management while emphasizing the role of analytics in decision making. The rigorous and disciplined academic curriculum makes the course very different from a more casually-managed investment club.

4. Learning Outcomes

Upon successful completion of the course, students in this course, as a team, will be able to:

- Define investment objectives and constraints.
- Establish an investment policy, including targeted investment style, asset allocations, and appropriate benchmarks to evaluate performance.
  - Understand the existing investment policy statements.
  - Modify the investment policy statement, as necessary, to articulate the investment objectives and constraints more clearly.
- Select portfolio strategies using scientific methods. Point to clear and objective methods as the basis for the portfolio decisions, when being asked.
  - Source investment ideas from academic research and/or from the cutting-edge practice of investment institutions.
  - Turn the investment ideas into investment hypotheses that can be tested in data (under practical considerations).
  - Organize and filter data to test the investment hypotheses.
Find or develop appropriate empirical methods to test the hypotheses.

Test out-of-sample performance of hypothesized portfolio strategies with historical data and via simulations.

Check the robustness of the empirical results with different samples and with alternative specifications and constraints.

Analyze and discuss if a proposed strategy's expected excess return is commensurable to its marginal impacts on the portfolio risk.

Understand the virtue and pitfalls of back-testing. In particular, understand the danger of data mining/snooping in portfolio decisions.

Construct the portfolio via return/risk optimization and heuristics.

Optimize portfolios to achieve the investment objective subject to constraints (as set forth in the investment policy).

Understand the virtue and pitfalls of optimization methods. Discuss how much optimization is optimal in the presence of parameter uncertainty and estimation errors.

Develop heuristic (yet systematic and non-ad-hoc) approaches to improve portfolio construction, as necessary.

Measure and evaluate portfolio performance.

Conduct risk/return attribution analysis.

Evaluate how much is working and how much is random.

Measure individual securities’/strategies’ marginal and total risk contributions in the portfolio.

Measure the portfolio’s exposures to various systematic risk factors.

Measure the effects of turnover (transaction costs) on the portfolio.

Analyze and discuss risk budgets (as opposed to capital budgets) to see if students can improve the portfolio.

Monitor the portfolio continuously and suggest improvements in the portfolio management process.

Pass portfolio strategies and portfolio management processes on to their successors via verbal communication and documentation.
Notes: These are the learning objectives for the team, not for individual students. It is impractical to assume that each individual student can fulfill all of these learning outcomes within a semester. This course will encourage each student to develop expertise in some specialized areas of the portfolio management process based on her/his interest and background.

5. Course Materials and Suggested Readings

The course will utilize the computational resources in the finance lab (room 229). Available data resources, that are particularly relevant and useful for this course, include Bloomberg and Capital IQ.


Other useful references include, among others:


The course will also utilize online discussion forums to facilitate communication among the students and the instructor.
6. Course Format and Requirements

During the semester, students in this course will work on research projects in small groups. Each group will be responsible for documenting and presenting research outputs or/and developing software/database (e.g. spreadsheets) for the course.

Each group’s research project is determined at the beginning of the semester with the consultation of the instructor. Students also work on various ad hoc projects in response to new information and for making time-sensitive decisions.

The course meets regularly to stay focused on the teams’ objectives and to exchange ideas to enhance the overall productivity of the class. Students are also encouraged to share information/resources with the class and to initiate and participate in discussions online.

During the semester, each student group makes multiple presentations to the class to report the group’s progress and to receive feedback from other students and the instructor.

Near the end of the semester, the students will report their research findings and the portfolio performance in a formal presentation to the Finance and Investment Committee Members and the Executive Director of the BPF.

By the end of the semester, each student group will complete a research report. These reports will then be integrated into a formal End-of-Semester Report that is to be reviewed by the BPF Finance and Investment Committee.

7. Sample Course Outline and Sample Students’ Report

A sample of the End-of-Semester report from FINA772 (Spring 2014), which includes the investment policy, course outline, and students’ research outcomes, is available at: https://db.tt/tMR3UZ4d

8. Course Grading

Course Grading will depend on students' research reports, presentations, and overall contribution to the portfolio management process.
9. Academic Integrity
It is the responsibility of every student at the University of South Carolina Columbia to adhere steadfastly to truthfulness and to avoid dishonesty, fraud, or deceit of any type in connection with any academic program. Any student who violates this Honor Code or who knowingly assists another to violate this Honor Code shall be subject to discipline. The Honor Code is attached below. For more information about the academic integrity issues, go to the following website: www.sc.edu/academicintegrity

University of South Carolina Honor Code:

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1. Giving or receiving unauthorized assistance, or attempting to give or receive such assistance, in connection with the performance of any academic work.
2. Unauthorized use of materials or information of any type or the unauthorized use of any electronic or mechanical device in connection with the completion of any academic work.
3. Access to the contents of any test or examination or the purchase, sale, or theft of any test or examination prior to its administration.
4. Use of another person’s work or ideas without proper acknowledgment of source.
5. Intentional misrepresentation by word or action of any situation of fact, or intentional omission of material fact, so as to mislead any person in connection with any academic work (including, without limitation, the scheduling, completion, performance, or submission of any such work).
6. Offering or giving any favor or thing of value for the purpose of influencing improperly a grade or other evaluation of a student in an academic program.
7. Conduct intended to interfere with an instructor’s ability to evaluate accurately a student’s competency or performance in an academic program.

Whenever a student is uncertain as to whether conduct would violate this Honor Code, it is the responsibility of the student to seek clarification from the appropriate faculty member or instructor of record prior to engaging in such conduct.