

Canisius College  
Richard J. Wehle School of Business  
Department of Economics/Finance  
Course Syllabus  
FIN 414 Portfolio Analysis  
Spring 2017 (CRN:48068), TTR:4:30am-5:45pm, Location: Lyons Hall 312

INSTRUCTOR

Paul Yan

CLASS HOURS

TTR: 4:30pm-5:45pm

OFFICE HOURS

T: 9:00am-11:00am

or by appointment

CT308

LOCATION OF OFFICE

(716)888 2604

PHONE EXTENSION ON CAMPUS

[yany@canisius.edu](mailto:yany@canisius.edu)

E-MAIL ADDRESS

#### DESCRIPTION OF COURSE

Exploration of portfolio theory from an individual and an institutional viewpoints. Development of appropriate global portfolio strategies for pension and endowment funds, mutual funds, banks, insurance companies and other financial intermediaries. Topic covered includes capital market history and asset allocation, Markowitz diversification, styles of equity portfolio management, management of stock and bond portfolios, and performance evaluation. Provides an introduction to both quantitatively and fundamentally based portfolio management techniques and utilized computer based information systems and analytical tools.

#### COURSE LEVEL LEARNING GOALS

Learn basic portfolio theory; understand various performance measures of portfolios, such as mutual funds, know how to download data from various public financial sources, such as Yahoo!Finance, Federal Reserve Banks' data library, Prof. French's data library, be able to use Excel to process data to form various portfolios and construct optimal portfolios and an efficient frontier.

#### COLLEGE, PROGRAM AND MAJOR LEARNING GOALS

This course is designed to help students achieve one or more College Core, Business Program and/or Major level learning goals and objectives. You can see the specific College, Program or Major level learning goals and objectives associated with the course from this page on the College website: <http://bit.ly/bcoreLG>.

PREREQUISITES: FIN311 or equivalent

REQUIRED TEXTBOOK: Investments, 10<sup>th</sup> edition, by Bodie, Kane and Marcus.

Course Number	<b>FIN 414</b>
	<b>Paul Yan</b>
	Canisius College
ISBN-13	<a href="#">9781308021690</a>
ISBN-10	<a href="#">1308021690</a>

#### TECHNICAL TOOLS: EXCEL

Excel will be the major computational tool for this course. I will discuss all Excel related functions. The related web page is <http://canisius.edu/~yany/excel>.

#### R SOFTWARE

R is open source statistical and computational software, see [www.r-project.org](http://www.r-project.org). For this course, it is optional. Students could use R as a financial calculator and as a tool to download data. I will briefly discuss R in a few

lectures. More importantly, I will supply all related R programs (codes). No programming skills are needed and I will NOT teach R in this course. Just remember one line of R codes below.

```
> source("http://canisius.edu/~yany/fin414.R")
```

### LAPTOP POLICY

Students are encouraged to bring a laptop to the class. However, it should be used for the class related activities only.

### DATA COLLECTION, CONVERSION, RETURN ESTIMATION AND PORTFOLIO FORMATION

The skills related to data collection, processing and data mining would play a more and more important role in our everyday lives. In this course, Yahoo Finance, Google Finance, Federal Reserve Bank Data Library and Prof. French's data library will be our data sources. In particular, students learn how to collect daily stock price data from Yahoo Finance, convert them into monthly frequency, estimate monthly returns and annual returns. In addition, students learn to collect US quarterly GDP (Gross Domestic Product), CPI (Consumer Price Index), risk-free rate, Russell indices, gold price and merge them with stock data. Based on the final data set generated, which includes over 200 stocks, CPI, US Debt level, Rf, SMB, HML, gold price, more than a dozen country indices, Russell indices, US unemployment rate and others, students are asked to finish several data cases, such as cross-country diversification, form a n-stock portfolio, estimate their return matrix, variance-covariance matrix, test the relationship between the number of stocks in a portfolio and the portfolio standard deviation (risk), choose an optimal portfolio and construct an efficient portfolio frontier.

### COURSE REQUIREMENTS

Students are expected to know all the topics covered in FIN 311, such as geometric returns, security market indexes, bond valuation, duration, options and futures. Students will be evaluated based on a set of data cases, a mid-term exam, a final exam, the portfolio project, and class participation.

### METHODS OF EVALUATING STUDENTS

Data cases (7-10 depend on the progress of the course)	30%
Mid-term Exam	15%
Final Exam (cumulative)	20%
Group Term Project – topic, design, program and description	20%
Group Term Project- presentation	5%
Class Participation	10%
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Total	100%

### Homework

For this course, I will use databases (7 to 10) in the place of homework.

A list of potential data cases (tentative)

#	Name	#	Name
1	VaR (Value-at-Risk): A risk measure	6	From daily to monthly returns
2	Cross country diversification	7	Fama-French 3-factor model
3	Chapter 7: Optimal Risky Portfolio .a) Relationship between portfolio volatility vs. # of stocks; b) portfolio optimization	8	CPI (Consumer Price Index) calculator
4	Chapter 9: CAPM Beta estimation	9	Market Efficiency Hypothesis vs. Anomaly: January effect
5	Data set construction (I) stock data	10	

Make-up exams: these will be given only if there is an absolutely serious reason, such as illness (being overwhelmed or not quite prepared is not an excuse!), or business travel for employer (evidence should be provided). There should be prior notice (at least 30 minutes before the exam by e-mail in case of illness, or at least one week before if a business trip is expected.)

### **TERM PROJECT**

Each group could have up to three members. A topic should be closely associated with this course. The maximum number of pages of your final report is 15, one-sided, double spaced, font of 12. Please discuss with me your topic before you start to work on it.

Real world topics are strongly encouraged. Three parts are essential:

- 1) Why your topic is important or interesting? (theory, background, etc.)
- 2) Source of your data and final data set (explanation on how to process the data)
- 3) Excel file(s) (or other programs and a short explanation of the codes)

After the mid-term, I will offer you more information, such as a few potential topics.

### **ATTENDANCE POLICY**

Attendance is required. The course lectures and problem solving in this course are designed in a way that students' attendance and class participation are required for learning the subjects and passing the tests.

### **COURSE CONTENT (Tentative)**

<b>Date</b>	<b>Contents</b>	<b>Data cases</b>
1/17	Self-introduction and administrative information background to the course, Review of basic concepts and related Excel functions	Data case #1: distribute
1/19	<i>Introduction and Chapter 5: Risk, Return and Historical Record</i>	(VaR: Value-at-Risk)
1/24	<i>Chapter 6: Capital Allocation to Risky Assets</i> Review of basic concepts and related Excel functions(cont'd) This includes a discussion of the importance of objectives and constraints confronted by individual and institutional investors and the role of the allocation decision. Selecting investments in the global markets is also discussed.	Data case #2: distribute (correlation among different market indices)
1/31 2/2	<i>Chapter 7: Optimal Risky Portfolios</i> Stock market indices, bond market indices Domestic vs. international, value-weighted, equal-weighted, price weighted, correlation among market indices	Data case #3: distribute (portfolio risk)
2/7 2/9	<i>Chapter 8: Index Models</i> Coverage of the assumptions and measurement techniques underpinning Markowitz diversification, as well as international diversification. The role of correlation in the determination of portfolio risk is discussed along with the efficient frontier.  (note: I might attend a conference for 2/6)	
2/14 2/16	<i>Chapter 9: The Capital Asset Pricing Models</i> An introduction to capital market theory is priced with emphasis on determining optimal portfolios and the relationship to relevant risk in asset pricing models such as the CAPM. A discussion of the arbitrage pricing theory (APT) and multifactor models is also provided.	Data case #4: distribute (estimate beta)
<b>2/21</b> 2/23	<b>No classes</b> <i>Chapter 10: Arbitrage Pricing Theory and Multifactor Models of Risk</i>	Data case #5: distribute

	<p><i>the Return</i></p> <p>Approaches to passive and active equity portfolio strategies are introduced. Coverage of topics including style analysis, equity asset allocation strategies, equity portfolio performance measures, such as Sharpe, Treynor, and Jensen measures, and tracking error.</p>	(Sharpe ratio, etc. )
2/28 3/2	<p>Chapter 11: The efficient Market Hypothesis</p> <p>Difference between mutual funds, hedge funds and private equity firms.</p> <p>Coverage of hedge fund styles and strategies.</p>	

Date	Contents	Data cases
3/7	<b>Mid-term</b>	<b>Term project: potential topics distribute</b>
3/9	<i>Chapter 12: Behavioral Finance and Technical Analysis</i>	
3/14 3/16	<b>Spring break</b>	Data case #6: distribute
3/21 3/23	<i>Chapter 13: Empirical Evidence on Security Returns</i>	Data case #7: distribute
3/28	<i>Chapter 24: Portfolio Performance Evaluation</i>	Data case #8 ?
3/30	Variety of portfolio performance measures (not covered in a previous session), such as Information ratio, attribution analysis and other measures, are covered, such as Sharpe ratio, Jensen alpha,	
4/4 4/6	<i>Chapter 27: theory of Active Portfolio Management</i>	
4/11 4/13	Chapter 26, Hedge Funds and Chapter 4: Mutual funds Institutional, regulatory and ethical attributes pertinent to the asset management industry are discussed, along with AIMRs “Code of Ethics and Standards of Professional Conduct.” <b>Easter Recess/No Classes</b>	
4/18 4/20	Chapters 26, 4 (continued)	
4/25 4/27	<i>Term project presentation</i>	<b>Term project: due</b>
5/2 5/4	<i>Term project presentation</i> <i>Backup day</i>	
TBA	<b>Final Exam</b>	

## SELECTED JOURNAL ARTICLES

Ambachtsheer, K. 2005, Beyond Portfolio Theory: The Next Frontier, *Financial Analysts Journal*, 29-33.  
[http://www.kpa-advisory.com/pdf\\_documents/faj\\_jf05\\_ambachtsheer.pdf](http://www.kpa-advisory.com/pdf_documents/faj_jf05_ambachtsheer.pdf)

Berk, Jonathan, 2005 "Five Myths of Active Portfolio Management," Journal of Portfolio Management, Vol. 31, pp. 27-31.  
[http://faculty.chicagobooth.edu/john.cochrane/teaching/35150\\_advanced\\_investments/Berk\\_myth.pdf](http://faculty.chicagobooth.edu/john.cochrane/teaching/35150_advanced_investments/Berk_myth.pdf)

Brad M. Barber Yi-Tsung Lee Yu-Jane Liu Terrance Odean, 2008, Just How Much Do Individual Investors Lose by Trading? The Review of Financial Studies 22, 609-632.  
[http://faculty.haas.berkeley.edu/odean/papers%20current%20versions/justhowmuchdoindividualinvestorslose\\_rfs\\_2009.pdf](http://faculty.haas.berkeley.edu/odean/papers%20current%20versions/justhowmuchdoindividualinvestorslose_rfs_2009.pdf)

Carhart, Mark M., 1997, On Persistence in Mutual Fund Performance, Journal of Finance 52,  
[http://faculty.chicagobooth.edu/john.cochrane/teaching/35150\\_advanced\\_investments/Carhart\\_funds\\_jf.pdf\\_57-82](http://faculty.chicagobooth.edu/john.cochrane/teaching/35150_advanced_investments/Carhart_funds_jf.pdf_57-82).

Cochrane, John, 2009, Note explaining Fama and French  
[http://faculty.chicagobooth.edu/john.cochrane/teaching/35150\\_advanced\\_investments/cochrane\\_fama\\_french\\_mutual\\_fund\\_notes.pdf](http://faculty.chicagobooth.edu/john.cochrane/teaching/35150_advanced_investments/cochrane_fama_french_mutual_fund_notes.pdf)

Fama, Eugene F. and Kenneth R. French, 2010, Luck versus Skill in the Cross-Section of Mutual Fund Returns, Journal of Finance 65, 1915-1947.  
[http://faculty.chicagobooth.edu/john.cochrane/teaching/35150\\_advanced\\_investments/Luck%20versus%20Skill%20in%20the%20Cross%20Section%20of%20Mutual%20Fund%20Returns.pdf](http://faculty.chicagobooth.edu/john.cochrane/teaching/35150_advanced_investments/Luck%20versus%20Skill%20in%20the%20Cross%20Section%20of%20Mutual%20Fund%20Returns.pdf)

Insider Monkey, Warren Buffett's alpha,  
<http://www.insidermonkey.com/blog/chart-of-the-day-warren-buffett%E2%80%99s-alpha-1977-2009-395>

Insider Monkey, Warren Buffett's style drift  
<http://www.insidermonkey.com/blog/warren-buffett%E2%80%99s-style-drift-411/>

Murphy, Eric A., Inefficiencies of Portable Alpha Models(July 2006). Available at SSRN:  
<http://ssrn.com/abstract=921760>

Sharpe, William, Mutual Fund Performance Measures, Factor Models, and Fund Style and Selection, Stanford University, <http://www.stanford.edu/~wfsharpe/art/mfpm/mfpm.htm>

Video

CAPM: single factor model <http://www.youtube.com/watch?v=M39LPrz2gr8> (27m 23s)

Portfolio optimization : <http://www.youtube.com/watch?v=FZyAXP4syD8> (19m 22s)

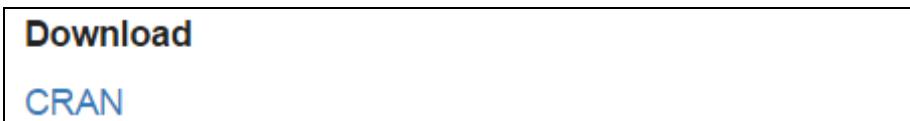
## Appendix A: one page instruction

To download and install R (free computational software), we have the following 5 steps.

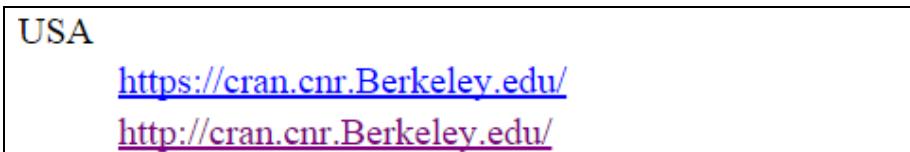
Step 1: Go to <http://www.r-project.org>



Step 2: Click "CRAN" under "Download" (left-hand side)



Step 3: Choose a mirror address



Step 4: Choose appropriate software (PC, Mac)

- [Download R for Linux](#)
- [Download R for \(Mac\) OS X](#)
- [Download R for Windows](#)

Step 5: Click "base". For example, for Windows, we have the following result.



After launch R, just issue the following one line R codes.

```
>source("http://canisius.edu/~yany/fin414.R")
```

Note that R is case-sensitive.