

# QUANTITATIVE INVESTMENT MANAGEMENT [ECON-158] SPRING 2008

**Instructor:** Professor Ludwig Chincarini, CFA, Ph.D.

**Phone:** 909-621-8881 (Office) 703-585-0336 (Cell)

**Email:** [chincarini@hotmail.com](mailto:chincarini@hotmail.com) [always have in subject line: Econ158]

**Website:** <http://pages.pomona.edu/~lbc04747/>

**Office Hours:** Carnegie 208 (Mon & Wed 4:15 – 5:30 PM or by request).

**Class Hours & Location:** Mon & Wed, 2:45 – 4:00 PM, CA 107 (regular classes) For the computer lab classes: HN 204.

**Prerequisites:** Econ 56 and Econ 157.

**Course Description:** *The understanding and application of quantitative equity portfolio management (QEPM). This course builds on seminal work in financial theory, like the CAPM and APT, and includes discussion of the differences between QEPM and traditional qualitative analysis, the relationship between QEPM and market efficiency, the use of futures and options to create leveraged and market neutral portfolios, and the use of Bayesian methods to handle non-quantitative data. The course involves application of the concepts to real-world data.*

**Course Objective:** *To be familiar with investment analysis for ease of understanding concepts produced in the financial press, for a background that would allow a basic intuitive and mathematical understanding of their behavior for work in the financial markets, and to understand how to manage equity portfolios, especially with regards to the ever growing trend of QEPM (quantitative equity portfolio management).*

**Required Text:**

Chincarini, Ludwig B. and Daehwan Kim. *Quantitative Equity Portfolio Management*. New York, McGraw-Hill, 2006.

*Note:* Can be obtained from bookstore or ordered via [www.amazon.com](http://www.amazon.com) or [www.barnesandnoble.com](http://www.barnesandnoble.com).

**Reader (Soft Copy):** A compilation of articles relevant to the course will be provided on Sakai and my website in electronic form.

**Other Reading:** Students are **strongly encouraged** to read the Wall St. Journal. Students can sign up for a subscription with me. Barrons is another interesting journal that students should consider.

**Handouts:** Depending on current news topics, handouts relevant to the material will be distributed to students throughout the semester. It will be the students' responsibility to obtain any missed handouts due to absence at a particular class.

**A Note on Academic Honesty:** Cheating is against the implicit honor code of Pomona College. Thus, projects, exams, quizzes, and homework should be done with complete integrity. If a case of cheating is detected, it will result in my reporting the act to the university administration. It can also lead to a failing grade in the course. Any act of plagiarism is a serious break of academic standards and a deliberate case can lead to suspension or expulsion. Any quotation from another source, whether written or spoken, must be bound by quotation marks and footnoted. Paraphrases must be footnoted as well. Generally, cite the use of words or work by others.

## Summer Reading Books

1. Malkiel, Burton. *A Random Walk Down Wall Street*. [A classic book and an easy read.]
2. Bernstein, Peter. *Capital Ideas*. [A book that explains the history of modern portfolio theory, including all of the major players from Markowitz to Fischer Black. A fun read.]
3. Lewis, Anthony. *Liar's Poker*. [A fantastic book that discusses, among other things, the great Salomon arbitrage traders of Meriwether & Co., including their love for the game of Liar's Poker.]
4. Bruck, Connie. *Predator's Ball*. [A fun book describing the history of Michael Milken and how the junk bond market was created. A fun read in a major movement in Wall St. history.]

## Software Needs:

1. STATA. *A statistical programmable software package*.
2. MATLAB. *A programming language with lots of built in tools*.

*Note:* Students who find clever ways to accomplish our exercises and share their programs and ideas with the class will receive bonus points.

## Industry Licenses:

Some of you may wish to enroll in the CFA program ([www.aimr.org](http://www.aimr.org)) or in the MTA program ([www.mta.org](http://www.mta.org)). The first program is the Certified Financial Analyst pedigree, while the second is a Chartered Market Technician's pedigree. These are credentials that are increasingly being attained by people in the financial industry. Some of the material in this course will be on the CFA exam.

## Course Requirements and Grading:

Class Participation:	10%
Mid-Term:	25%
Portfolio Project:	20%
Final Exam:	40%
Assignments:	5%

**Further Notes:**

- **Class participation** consists of attendance, making comments, answering questions, and or posing questions during class. I may randomly call on people. Please come to class on time for consideration of your professor and fellow students.
- The **Final Exam** will cover all material covered after the mid-term.
- **Portfolio Projects** will consist of group projects (2-3 per group) in which students prepare a document related to constructing and managing “real” portfolios using QEPM. These studies should use concepts learned in the class to manage the portfolios. The project will be split up into several parts. The due dates for each part have not been set, but as soon as they are, students shall be given the dates.
- **Assignments** will be given so that students can practice answering questions over the material studied, but *will not be graded*. I will keep track of people who do homework in order to determine borderline grades. Students are encouraged to pay attention to **financial news** as some questions may be linked to current financial market events.
- **Writing improvement** is given by the Pomona Writing Center at Smith Campus Center 216. The website is <http://writing.pomona.edu/writingcenter>. It is a complimentary service to help you with writing.

## Organization and Course Outline<sup>12</sup>

Key: \* - required reader article

\*\* - optional reader article

### Session 1: January 23, 2008

1. Intro to course
2. Overview of the Course
3. The Power of QEPM

Reading: Chapter 1, QEPM

QIM\_158\_1. Urstat, Bryant. "The Blow Up. The Quants behind Wall Street's Summer of Scary Numbers." *Technology Review*, November/December, 2007. Urstadt, Bryant.

### Session 2: January 28, 2008

4. The Fundamentals of QEPM

Reading: Chapter 2, QEPM

QIM\_158\_2. Chincarini & Kim. "Another Look at the Information Ratio." *Journal of Asset Management*, December 2007.\*\*

QIM\_158\_3. Statman, Meir. "Behavioral Finance: Past Battles & Future Engagements." *Financial Analysts Journal*, Nov/Dec 1999.\*

QIM\_158\_4. Jacobs, Bruce and Ken Levy. "Disentangling Equity Return Regularities." *Financial Analysts Journal*, May/June 1988.\*

QIM\_158\_5. Lo, Andy. "Where do Alphas Come From? A New Measure of the Value of Active Management." *MIT Working Paper*, May 15, 2007.\*\*

QIM\_158\_6. McQueen, Grant and Stephen Thorley. "Mining Fool's Gold" *Financial Analysts Journal*, March/April, 1999.\*

---

<sup>1</sup> In all cases, dates are the most probable, but again this could change as the semester evolves.

<sup>2</sup> We will miss class on the following days: March 17 and March 19 (Spring Recess).

**Session 3: January 30, 2008****5. Basic QEPM Models**

Reading: Chapter 3, QEPM

QIM\_158\_7. Fabozzi, Frank. "Factor Based Approach to Equity Portfolio Management."\*\*

**Session 4: February 4, 2008****6. Factors and Factor Choice**

Reading: Chapter 4, QEPM

QIM\_158\_8. O'Schaugnessy, James. "Factor Profiles of the Rich and Famous."\*\*

QIM\_158\_9. Navellier, Louis. "Finding Growth Stock Winners: Focus on 8 Fundamental Factors." *The AAI Journal*, January 2008.\*\*

**Session 5: February 6, 2008****7. Factors and Factor Choice**

Reading: Chapter 4, QEPM

Lab with Market Data.

**Session 6: February 11, 2008****8. Stock Screening and Ranking**

Reading: Chapter 5, QEPM

QIM\_158\_10. Thorp, Wayne. "Master Strategists for 2007: AAI's Top Stock Screens." *The AAI Journal*, January 2008.\*

**Session 7: February 13, 2008****9. Stock Screening and Ranking**

Reading: Chapter 5, QEPM

Lab with Market Data.

**Session 8: February 18, 2008**

10. **Portfolio Theory**  
Reading: QEPM. Appendix A on CD.  
QIM\_158\_11. Markowitz, Harry. "Portfolio Selection." *Journal of Finance*, 1952.\*\*
11. **The CAPM**  
Reading: QEPM. Appendix A on CD.  
QIM\_158\_12. Chincarini, Ludwig, Colder, Brian, DiStanlo, Jeff, Kim, Daehwan, and Dimitri Paliouras. "Part 1: Diversification," *Handbook of Folio Investing*, 2001.\*\*  
QIM\_158\_13. Foliofn Research, "Beta Folios." *Foliofn Research Paper*, July 12, 2000.\*\*
12. **APT**  
Reading: QEPM. Appendix A on CD.  
QIM\_158\_14. Ross, Stephen. "The Arbitrage Theory of Capital Asset Pricing" *Journal of Economic Theory*, December, 1976.\*\*  
QIM\_158\_15. Cochrane, John. "New Facts in Finance." *NBER Working Paper*, June, 1999.\*

*Note: Since Security Valuation and Portfolio Theory is a prerequisite for this course, we will cover the above categories very quickly.*

**Session 9: February 20, 2008**

13. **The Fundamental Factor Model of QEPM**  
Reading: Chapter 6, QEPM.

**Session 10: February 25, 2008**

14. **The Economic Factor Model of QEPM**  
Reading: Chapter 7, QEPM.

## Session 11: February 27, 2008

15. The Fundamental & Economic Factor Model of QEPM  
Reading: Chapter 7, QEPM.  
Lab with Market Data.

## Session 12: March 3, 2008

16. Mid-Term Examination

## Session 13: March 5, 2008

17. Forecasting Factor Premiums and Exposures  
Reading: Chapter 8, QEPM.

## Session 14: March 10, 2008

18. Portfolio Construction: Security Weighting & Risk Models  
Reading: Chapter 9, QEPM.

## Session 15: March 12, 2008

19. Rebalancing & Transaction Costs  
Reading: Chapter 10, QEPM.

*\*\*\* March 13, 2008 Last Day to Drop Classes \*\*\**

*\*\*\* March 17 & March 19: Spring Recess \*\*\**

## Session 16: March 24, 2008

20. Taxes and Portfolio Management  
Reading: Chapter 11, QEPM.  
QIM\_158\_16. Chincarini, Ludwig and Daehwan Kim. "The Advantages of Tax Managed Investing." *Journal of Portfolio Management*, Fall, 2001.\*

**Session 17: March 26, 2008**

21. **Alpha-Mojo: Leverage**  
Reading: Chapter 12, QEPM.

**Session 18: March 31, 2008**

22. **Alpha-Mojo: Leverage**  
Reading: Chapter 12, QEPM.

**Session 19: April 2, 2008**

23. **Alpha-Mojo: Market Neutral**  
Reading: Chapter 13, QEPM.

**Session 20: April 7, 2008**

24. **Alpha-Mojo: Leverage & Market Neutral**  
Reading: Chapter 13, QEPM.  
Lab with Market Data.

**Session 21: April 9, 2008**

25. **Alpha-Mojo: Bayesian Alpha**  
Reading: Chapter 14, QEPM.

**Session 22: April 14, 2008**

26. **Performance Measurement & Attribution**  
Reading: Chapter 15, QEPM.

**Session 23: April 16, 2008**

27. **Performance Measurement & Attribution**  
Reading: Chapter 15, QEPM.  
Lab with Market Data.

## Session 24: April 21, 2008

28. The Backtesting Process  
Reading: Chapter 16, QEPM.  
Lab with Market Data.

\*\*\* April 23 - Last Day to file for an Incomplete \*\*\*

## Session 25: April 23, 2008

29. QEPM: Further Topics  
Reading:  
QIM\_158\_17. Lawson, Brad. "Evaluating Quantitative Managers" *Russell Research Commentary*, November, 2000.\*  
QIM\_158\_18. Jones, Robert C. "The Active versus Passive Debate: Perspective of an Active Quant."\*  
QIM\_158\_19. Lo, Andy. "Reconciling Efficient Markets with Behavioral Finance: The Adaptive Markets Hypothesis." *The Journal of Investment Consulting*, 2005.\*

## Session 26: April 28, 2008

30. QEPM: Further Topics  
Reading:  
QIM\_158\_20. O'Hara, Neil. "The Long and the Short of 130/30s." *On Wall Street*, September 1, 2007.\*  
QIM\_158\_21. Aguilar, Omar, Costa, Vincent, and Vinay Mendiratta. "Can Quantitative Investing Avoid the Pitfalls of Investor Bias? A Perspective on the US Equity Market." *Benefits Canada*, December, 2007.\*  
QIM\_158\_22. Schumaker, Robert P. and Hsinchun Chen. "Evaluating a News-Aware Quantitative Trader: The Effect of Momentum and Contrarian Stock Selection Strategies." *Journal of the American Society for Information Science and Technology*, January 15, 2008.\*  
QIM\_158\_23. Ahmed, Parvez and Sudhir Nanda. "The Performance of Enhanced Index and Quantitative Equity Funds." *The Financial Review*, 2005.\*

Session 27: April 30, 2008

31. QEPM: Further Topics  
Reading:

Session 28: May 5, 2008

32. QEPM: Further Topics  
Reading:

Session 29: May 7, 2008

33. Words of Wisdom for Life
34. Review for Final Exam

Session 30: December 14, 2008

35. Final Exam. 2 – 4 P.M.

### Guest Speakers<sup>3</sup>

1. Guest Speaker 1: TBA
2. Guest Speaker 2: TBA

*We may have two or three guest speakers of significant status in the money management arena to speak to us on real-world portfolio management.*

---

<sup>3</sup> None of the guest speakers are confirmed.