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Business Finance 8255  
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**Business Finance 8255**  
**Advanced Asset Pricing 2**

## **1. Course Description**

The course will present a detailed look at the state of the anomaly and factor pricing literature as it stands today. The goal is to acquaint you with the major themes and important questions that are the subjects of on-going investigations, and to equip you with a solid understanding of the primary quantitative tools to enable you to participate in and to contribute to these investigations.

The course can be divided into three parts. In the first part, we dive into the anomaly literature, which is the scientific foundation of quantitative investing. Anomalies are repeated patterns that make stock returns look predictable based on accounting variables or trading signals. They are typically interpreted as evidence of market inefficiency (although they don't have to be), hence the word "anomaly". Our objective is to use a consistent set of procedures and up - to - date market data to check the robustness of entire set of anomaly strategies. While there are plenty of opportunities in the market place for quantitative investing, there is also tons of noise. And the key is to be able to separate true signals from the noise, and focus on robust strategies.

In the second part of the course, we will introduce to you some of the widely used factor models for portfolio risk optimization, active-risk budgeting, performance evaluation, and style/attribution analysis. We will discuss in details how these factor models are constructed, their underlying economic intuitions, and the relations between different factor models. More importantly, we will compare the performance of different factor models by using them to unify and explain the robust anomaly strategies discovered during the first part of our course. What we are interested in is which factor model(s) can explain the largest set of robust anomaly strategies. What are the economic intuitions behind the performance differences? For those anomaly strategies that cannot be explained by the factor models investigated, how can we repackage them with the factor models to create trading strategies that offer superior risk-return tradeoffs?

In the third and final part of the course, we will introduce to you some of the popular value investing strategies used by active funds. We will then use recently developed factor models to performance benchmark these value investing strategies as well as active value funds. We ask the following questions: Do these value investing strategies/funds offer superior returns (alphas) relative to the factor models? If not, what factors are responsible for explaining the returns of these strategies? What are the intuitions? If there are alphas unexplained, what important dimensions in expected returns that these strategies/funds are exploiting but missed by the factor models? What are the future directions of active management?

The course will meet twice a week. The meetings will be centered around a set of research papers and books that have important implications for investment management practice. You will be expected to have read the papers prior to the classes and to participate in the discussions. Besides readings, your responsibilities for the course will include an empirical project and an in-class final exam.

## 2. Course Outline

- I. What are anomalies?
- II. Major anomaly categories.
  - Momentum
  - Value-versus-growth
  - Investment
  - Profitability
  - Intangibles
  - Trading frictions
- III. Assessing the profits from investing in anomalies.
  - Techniques
  - Results
- IV. Which of the anomalies do we really believe?
  - Is it all data mining?
  - Are those “profits” really there?
- V. How many anomalies are really unique?
  - How to shrink/unify the anomaly space?
- VI. The history of factor models.
  - CAPM
  - Fama and French three-factor model
  - Carhart four-factor model
  - Fama-French five-factor model
  - Fama-French six-factor model
  - Barillas-Shanken six-factor model
  - Stambaugh-Yuan four-factor model
  - Daniel-Hirshleifer-Sun three-factor model
  - Hou-Xue-Zhang  $q$ -factor model
  - Hou-Mo-Xue-Zhang  $q^5$  model
- VII. The relation between factor models and anomalies.
  - A horse race: Which factor models are most successful at explaining anomalies?
- VIII. The economic intuitions behind  $q$  and  $q^5$  models.
  - The investment CAPM.
- IX. How to invest in robust anomalies and factor models?
- X. Security analysis and active management.
  - What are the popular value investing strategies?
  - Are they really “active”?
- XI. The relation between active and passive investing.

- Can value investing strategies beat factor models?
- Can active value funds beat factor models?

XII. The future of active management.

### 3. Course Reading List

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- Cohen, L. and A. Frazzini, 2008, "Economic Links and Predictable Returns," *Journal of Finance* 63, 1977-2011
- Cooper, M., H. Gulen, and M. Schill, 2008, "Asset Growth and the Cross-Section of Stock Returns," *Journal of Finance* 63, 1609-1652.
- Fama, E. and K. French, 2008, "Dissecting Anomalies," *Journal of Finance* 63, 1653-1678.
- Greenblatt, J., 2010, "The Little Book That Still Beats the Market," John Wiley & Sons, Inc.
- Cohen, L., & Lou, D. (2012). Complicated firms. *Journal of financial economics*, 104(2), 383-400.
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