TOPICS IN DYNAMIC ASSET PRICING

Course Description

This course has two main objectives: First, to introduce students to the frontier of research in asset pricing. We will cover recent models that have been proposed to shed light on intriguing empirical regularities, such as the equity premium and excess volatility puzzles, the interest rate puzzle, bubbles, crashes, the time series and cross-sectional predictability of returns, limited stock market participation, and so on. By the end of the course, students will be comfortable with the pros and cons of various modeling strategies, and their empirical predictions. Topics include complete and incomplete markets equilibrium models, learning and uncertainty, differences of opinion and asymmetric information, politics and asset pricing, and the like.

The second objective of the course is to teach students how to write coherent research papers: The main assignments will be three or four research ideas, that students (in small groups) have to develop into four research papers. Each of these papers will have to include an introduction with motivation, a model and its solution (tips will be provided), the discussion of the model’s predictions, and their empirical tests. In addition, students will have to turn in a final paper on a topic of their choice. By the end of the course, students will learn what it takes to write a paper, the type of assumptions sometimes we must make to solve models, when we need to resort on numerical methodologies to obtain results and model predictions, and, finally, how we confront the models’ predictions with empirical data.

Note the unusual schedule: Classes are mostly on Tuesdays and a few Fridays. No class in 4 out of the 10 weeks. We finish the coursework in week 11. Specifically:

<table>
<thead>
<tr>
<th>Week</th>
<th>Tuesdays</th>
<th>Fridays</th>
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<tbody>
<tr>
<td>Week 1</td>
<td>Jan 7. 3:30-6:30 pm</td>
<td>Jan 10. 8:30-11:30 am</td>
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<tr>
<td>Week 2</td>
<td>Jan 14. No class</td>
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<tr>
<td>Week 3</td>
<td>Jan 21. 3:30-6:30 pm</td>
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<tr>
<td>Week 4</td>
<td>Jan 28. 3:30-6:30 pm</td>
<td>Jan 31. 8:30-11:30 am</td>
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<td>Week 5</td>
<td>Feb 3. No class</td>
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<td>Week 6</td>
<td>Feb 11. 3:30-6:30 pm</td>
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<tr>
<td>Week 7</td>
<td>Feb 18. 3:30-6:30 pm (midterm)</td>
<td>Feb 21. 8:30-11:30 am</td>
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<td>Week 8</td>
<td>Feb 25. No class</td>
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<td>Week 9</td>
<td>March 3. 3:30-6:30 pm</td>
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<td>Week 10</td>
<td>March 10. No class</td>
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<tr>
<td>Week 11</td>
<td>March 17 - 3:30-6:30 pm</td>
<td>March 20 - 8:30-11:30 am</td>
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Required Material

a) Teaching Notes, distributed throughout the course. Available on http://pietroveronesi.org/teaching/BUS35907.htm

Optional Material


f) Campbell John and Luis Viceira “Strategic Asset Allocation” Oxford University Press 2002

g) Kerry Back “Asset Pricing and Portfolio Choice Theory”, Oxford University Press, 2010


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**Requirements**

Strict prerequisites for this course is 34901.

**Review Sessions**

No review sessions.

**Course Requirements**

One of the objectives of this course is to teach students on how to do research. During the 11 weeks, I will then assign three research topics. Students, in small groups of no more than three students per group, will have to develop a full fledged paper for each topic. This typically include: (a) Introduction with motivation; (b) the development of a model; (c) its solution and prediction; (d) calibration or test of the model’s implications.

In addition to these three big homework assignments, there will be weekly mini assignments focused on the Teaching Notes. They will mainly be questions to make sure some “missing steps” are in fact covered. They will be written on the board on a weekly basis and solutions must be turned in on the following week. This is individual effort (no group work).

Finally, students will have to take a midterm around week 7, and develop an original final paper on a topic of choice.

**Grading**

Problem sets, mini weekly problem sets, midterm, class participation and final paper will count 30%, 10%, 30%, 5% and 25% of the final grade, respectively.

**Honor Code**

Students in my class are required to adhere to the standards of conduct in the Chicago Booth Honor Code and the Chicago Booth Standards of Scholarship. The Chicago Booth Honor Code also requires students to sign the following Honor Code pledge. "I pledge my honor that I have not violated the Honor Code during this examination," on every examination, as well as on the term project.

**Course Outline and Readings**

Please, note the following class schedule is preliminary and could be (in fact, will be) subject to modifications. ➔ indicates readings that are covered in the Teaching Notes and should be done before class starts. Most articles are available in JSTOR.
A. FOUNDATIONS (REVIEW)

Review of Probability Theory and Stochastic Calculus

⇒ TN 0 - 2005. (Not covered in class. Read on your own. We will cover important concepts as we go along)

Karatzas and Shreve (1991), Chapter 1.
Oksendal B. Chapter 1 – 5.
Duffie, Appendix D, E,

Review of Standard Dynamic Models with Complete Markets

State Price Densities and No Arbitrage

⇒ TN1

⇒ Duffie, Ch. 5 and 6
Karatzas and Shreve (1999), Ch 1.

Optimal Consumption and Portfolio Choice: Dynamic Programming and the Martingale Approach

⇒ TN1,
⇒ TN1_Addendum
⇒ Duffie, Chapter 9

Campbell, John and Luis Viceira "Strategic Asset Allocation” Oxoford University Press, 2002


**Aggregation, Equilibrium Prices, and Returns**

- TN 2

- Duffie, Chapter 10.


**B. APPLICATIONS TO DYNAMIC ASSET PRICING**

**Learning, Uncertainty and Asset Pricing**

- TN 3


Veronesi P. (1999) “Stock market overreaction to bad news in good times: A rational expectations equilibrium model” Review of Financial Studies, 12,


Learning, Uncertainty and Bubbles

➔ TN 3 (still)


Government and Asset Prices

➔ TN 4


**Heterogeneity**

TN 5

**Heterogeneous Preferences**


Garleanu N. and S. Panageas, 2015, Young, Old, Conservative, and Bold: The Implications of Heterogeneity and Finite Lives for Asset Pricing. *Journal of Political Economy*


**Limited Stock Market Participation**

Asymmetric Information


Differences of Opinion


Incomplete Markets and Frictions

⇒ TN 6

Karatzas and Shreve (1999), Chapter 6.


Applications of incomplete market settings


C: ADDITIONAL TOPICS (if time permits)

Fixed Income Securities and the Macroeconomy


Multiple Assets, Labor Income and Market Clearing Conditions


Longsaff F. and M. Piazzesi (2005) Corporate Earnings and the Equity Premium" JFE

Conditional models and the explanation of the cross-section of stock returns


Piazzesi, Schneider and Tuzel (2004) "Housing, consumption, and asset pricing”, Working paper

**Investments and Equilibrium Returns**


**Various Preferences**

**Recursive Utility**


**Habit Formation**


Chan Y.L. and L. Kogan (2002) “Catching Up with the Joneses: Heterogeneous Preferences and the Dynamics of Asset Prices” JPE

**Other Preference Specifications**


**Equilibrium with Endogenous Default**


**Dynamic Asset Allocation Strategies**

Duffie, Chapter 9

Campbell, John and Luis Viceira “Strategic Asset Allocation” Oxford University Press, 2002


**Ambiguity**


Epstein and Schneider (2004): Learning under Ambiguity, Working paper

**Intermediated Asset Pricing**

Adrian, Ettula, Muir “Financial Intermediaries, and the Cross Section of Asset Returns” Journal of Finance, forthcoming

Brunnermier and Sannikov: A Macroeconomic Model with a Financial Sector, AER (forthcoming)

He and Krishnamurthy: Intermediary Asset Pricing, AER, 2013

He and Kirshnamurthy: A Model of Capital and Crisis, ReStud, 2012

**Rare Events (but not only Rietz and Barro)**


Gabaix : Ten puzzles. QJE


Chen, Joslin, and Tran (2012), "Rare Disasters and Risk Sharing with Heterogeneous Beliefs" Review of Financial Studies, 2012, 25(7): 2189-2224

Liquidity and Asset Prices


Acharya and Pedersen “Liquidity Based Asset Pricing” , JFE

Structural Credit Risk Model

