



## Course Outline

### RSM 3011 H1 S

Advanced Topics in the Theory of Industrial Organization

Spring 2017

Course Meets: Wednesday 1:00 – 3:30, RSM 157 (most of the time)

Instructor: Ig Horstmann (RT 8013)

E-mail: [ihorstmann@rotman.utoronto.ca](mailto:ihorstmann@rotman.utoronto.ca)

Office Hours: By Appointment

### Course Scope and Mission

This course has two objectives: i) to introduce students to the game-theoretic models that are the foundation of the modern theory of firm behavior and ii) to take students to the frontier of Industrial Organization Theory by introducing them to the latest research in the field. The ultimate goal of the course is to help students develop research topics that will form the basis of their PhD thesis research.

### Evaluation and Grades

Grades are a measure of the performance of a student in individual courses. Each student shall be judged on the basis of how well he or she has command of the course materials. Each student will be required to do an in-class presentation of one of the papers on the reading list. The particular paper will be decided in consultation with the instructors. Prior to the presentation, the student will be required to submit a “referee report of the paper and a slide deck for the presentation. The referee report, slide deck and presentation will be graded (20% for referee report and 20% for slide deck and presentation). Students will also be required to develop and submit a research proposal. This proposal will account for the remaining 60% of the grade and will include the following: i) Introduction: What’s the question and why is it interesting? ii) Literature Review, iii) Discussion of modeling possibilities and testing.

### Tips for Reading Papers

A good way to think about how to read papers is to think about how to write them to this end, see McCloskey *Economical Writing* and Thomson’s *Guide to the Young Economist*.

There are a number of questions worth keeping in mind when reading a theory paper, unsurprisingly perhaps they turned out not to be shockingly different to those you should consider when reading an empirical paper as well...

1. What is the paper about?
  - What is the central question in the paper?
  - What is the bottom line?

- If Victor stopped you in the elevator and asked you “What was that paper about?” What would you tell him?
2. Even before getting into the nuts and bolts.
    - Is it in an interesting question? Is it one you have given any thought to before? Do you care what the answer will be? How does it help you understand the world?
    - Given the question, what would you answer? What do you think are the key forces/mechanisms at work in the economic situation? (if you have a view, you can better assess whether the paper is reasonable and/or insightful)
    - What is their basic answer? What is the consequence/implications of the result? Are there are other relevant applications of the insight?
  3. Next (if you still care) take a look at the model. In most new applied theory, things are set up as a game, and so get clear the underlying structure of the game.
    - Who are the players and how many?
    - What are actions/strategies
    - Rules/timing etc
    - Payoffs
    - Information assumptions (what do they know, about each other, structure of game etc and when)
    - What is the equilibrium notion?
  4. As you get more experience this will be easier to address, in the meantime, this may require going back and reading through the references etc. What is unusual in the structure of the game (Different functional form for payoff, different kind of information problem? Etc)
  5. (Usually this will have something to do with step 4) What is the key driver of the result? What is the driving economic mechanism, where are any unusual assumptions really playing a role (If you can't see what the driving economic mechanism is, be suspicious!)
  6. If you've seen the central forces, how they tie up to the particular set-up of the model, it's easier then to think about how plausible the mechanism in the application, how particular it is to the set-up, how robust the effect is, or how sensitive to particular and/or peculiar assumptions.
  7. Remember Alfred Marshall's advice to Pigou: "(1) Use mathematics as shorthand language, rather than as an engine of inquiry. (2) Keep to them till you have done. (3) Translate into English. (4) Then illustrate by examples that are important in real life (5) Burn the mathematics. (6) If you can't succeed in 4, burn 3. This I do often." (Buchholz, Todd G. 1989. *New Ideas from Dead Economists*. New York: Penguin Group. p. 151) ... in much of the course we may be focused on stage (1) and (2), this is not to say that the other steps are unimportant!

## **I. Communication Games, The Revelation Principle and Mechanism Design**

Myerson, R., *Game Theory: Analysis of Conflict*. Cambridge: Harvard University Press, 1991.  
Chap. 6, secs. 6.1-6.3, 6.5-6.7.

Laffont, J.-J. and J. Tirole, "Using Cost Observations to Regulate Firms". *JPE*, 94 (1986), pp. 614-41.

Myerson, R. and M. Satterthwaite, "Efficient Mechanisms for Bilateral Trading". *JET*, 29 (1983), pp. 265-81.

Ma, A., "Adverse Selection in Dynamic Moral Hazard". *QJE*, 106 (1991), pp. 255-75.

Bester, H. and R. Strausz, "Contracting with Imperfect Commitment and the Revelation Principle: The Single Agent Case", *Econometrica* 69(4) (2001), pp. 1077-98.

Jean Tirole: "From Bottom of the Barrel to Cream of the Crop: Sequential Screening with Positive Selection", *Econometrica*, 2015.

Carrol, G., "Robustness and Separation in Multidimensional Screening". Working Paper 2015.

## **II. Learning**

Rothschild, M., "A Two-Armed Bandit theory of Market Pricing" *Journal of Economic Theory*, 9 (1974), pp. 185-202.

Aghion, P., P. Bolton, C. Harris, B. Jullien, "Optimal learning by Experimentation" *Review of Economic Studies*, 58 (1991), pp. 621-54.

Bergemann, D. and J. Valimaki, "Learning and Strategic Pricing". *Econometrica*, 64 (1996), pp. 1125-50.

Keller, G., S. Rady and M. Cripps, "Strategic Experimentation with Exponential Bandits" *Econometrica*, 73 (2005), pp. 39-68.

Halac, M., N. Kartik and Q. Liu, "Contests for Experimentation", Working Paper (2015).

Garfagnini, U. and B. Strulovici, "Social Experimentation with Interdependent and Expanding Technologies", forthcoming, *Review of Economic Studies*.

## **III. Repeated Games**

Green, E. and R. Porter, "Non-Cooperative Collusion under Imperfect Price Information", *Econometrica*, 52 (1984), pp. 87-100.

Abreu, D., D. Pearce and E. Stacchetti, "Toward a Theory of Discounted Repeated Games with Imperfect Monitoring". *Econometrica*, 58 (1990), pp. 1041-63.

Kandori, M., "Repeated Games Played by Overlapping Generations of Players". *RESTUD*, 59 (1992), pp. 81-92.

Skrzypacz, A. and Y. Sanikov, "Impossibility of Collusion under Imperfect Monitoring with Flexible Production", *American Economic Review*, 97(5) (2007), pp. 1794-1823.

Staiger, R. and F. Wolak, "Collusive Pricing with Capacity Constraints in the Presence of Demand Uncertainty", *RAND Journal of Economics*, 23(2) (1992), pp. 203-220.

Rotemberg, J.J. and G. Saloner, "A Supergame-Theoretic Model of Price Wars During Booms." *American Economic Review*, 76 (1986), pp. 390-407.

Milgrom, P. and J. Roberts, "Predation, Reputation and Entry Deterrence", *Journal of Economic Theory*, 1982, pp. 280-312.

Benoit, J.P., "Financially Constrained Entry in a Game with Incomplete Information", *RAND Journal of Economics*, 15(4) (1984), pp. 490- 99.

Shapiro, C., "Premiums for High Quality Products as Returns to Reputations", *Quarterly Journal of Economics*, 98(4) (1983), pp. 659-79.

Harrington, J. and A. Skrzypacz, "Private Monitoring and Communication in Cartels: Explaining Recent Collusive Practices", *American Economic Review*, 100 (2011), 2425, 49.

#### **IV. Reputation**

Bar-Isaac, H. and S. Tadelis, "Seller Reputation", *Foundations and Trends in Microeconomics*, 2008, Volume 4:4, pp. 273–351.

Mailath, G. J. and L. Samuelson, *Repeated Games and Reputations: Long-Run Relationships*. Oxford University Press, 2006.

Bar-Isaac, H. and J. Deb, "(Good and Bad) Reputation for a Servant of Two Masters", *American Economic Journal: Microeconomics*, Vol 6(4), 2014, pp. 293-325.

Bar-Isaac, H. and J. Deb, "What is a Good Reputation? Career Concerns with Heterogeneous Audiences," *International Journal of Industrial Organization*, 34 (2014), pp. 44-50.

Bouvard, M. and R. Levy (2015) "Horizontal Reputation" working paper

Board, S. and M. Meyer-ter-Vehn, "Reputation for Quality", *Econometrica* 81(6) (2013), pp. 2381–2462.

#### **V. Search**

Weitzman, M, "Optimal Search for the Best Alternative," *Econometrica* 47(3) (1979), pp. 641-54.

Diamond, P., "A Model of Price Adjustment," *Journal of Economic Theory*, 3(2) (1971), pp.156-168.

Varian, H., "A Model of Sales," *American Economic Review*, 70(4) (1980), pp. 651-59.

Stahl, D., "Oligopolistic Pricing with Sequential Consumer Search," *American Economic Review*, 79(4) (1989), pp. 700-12.

Burdett, K. and K. Judd, "Equilibrium Price Dispersion," *Econometrica*, 51(4) (1983), pp. 955-70.

Wolinsky, A., "True Monopolistic Competition as a Result of Imperfect Information," *Quarterly Journal of Economics*, 101(3) (1986), pp. 493-512.

Baye, M., J. Morgan, and P. Scholten, "Information, Search, and Price Dispersion," in *Handbook of Economics and Information Systems*, Amsterdam (2006).

Armstrong, M., J. Vickers, and J. Zhou, "Prominence and Consumer Search," *RAND Journal of Economics*, 40(2) (2009), pp. 209-33.

Bar-Isaac, H., G. Caruana, and V. Cunat, "Search, Design, and Market Structure," *American Economic Review*, 102(2) (2012), pp. 1140-60.

Zhou, J., "Multiproduct Search and the Joint Search Effect," *American Economic Review*, 104(9) (2014), pp. 2918-39.

## **VI. Vertical Foreclosure and Exclusive Dealing**

Whinston, M.D., *Lectures on Antitrust Economics*, Cambridge: MIT Press 2006, Ch. 4.

Rey, P. and J. Tirole, "A Primer on Foreclosure," *Handbook of Industrial Organization*, Vol. 3 (2007).

Asker, J., and H. Bar-Isaac, "Raising Retailers' Profits: On Vertical Practices and the Exclusion of Rivals," *American Economic Review*, 104(2) (2014), pp. 672-86.

Fumagalli, Chiara and Massimo Motta, "Exclusive Dealing and Entry When Buyers Compete," *American Economic Review*, 96(3) (2006), pp. 785-95.

Simpson, John and Abraham Wickelgren, "Naked Exclusion, Efficient Breach and Downstream Competition," *American Economic Review*, 97(4) (2007), pp. 1305-20.

Calzolari, G., and V. Denicolo, "Competition with Exclusive Contracts and Market Share Discounts," *American Economic Review*, 103(6) (2013), pp. 2384-2411.

Montero, J-P., N Figueroa and E Ide, "Discounts as a Barrier to Entry", *American Economic Review*, forthcoming.

## **VII. Boundaries of the Firm**

Baziliauskas, A., I. Horstmann and F. Mathewson, "An Issues Paper on the Organization of Firms and Industrial Performance in Canada", Industry Canada, 2007.

Gibbons, R., "Four Formal(izable) Theories of the Firm", *Journal of Economic Behavior & Organization*, 58 (2005), pp. 200-45.

Whinston, M., "On the Transaction Cost Determinants of Vertical Integration", *Journal of Law, Economics and Organizations*, 19(1) (2003), pp. 1-23.

### **VIII. Platforms and Intermediaries**

Armstrong, M., "Competition in Two-Sided Markets," *RAND Journal of Economics*, 37(3) (2006), pp. 668-91.

Rochet, J. and J. Tirole, "Two-Sided Markets: A Progress Report," *RAND Journal of Economics*, 37(3) (2006), pp. 645-67.

Weyl, G., "A Price Theory of Multi-Sided Platforms," *American Economic Review*, 100(4) (2010), pp. 1642-72.

Blum, B., S. Claro and I. Horstmann, "Intermediation and the nature of Trade Costs: Theory and Evidence". Working Paper, 2016.

### **IX. Behavioral IO**

Della Vigna, S. and U. Malmedier, "Contract Design and Self-Control: Theory and Evidence," *Quarterly Journal of Economics*, 119(2) (2004), pp. 353-402.

Gabaix, X., and D. Laibson, "Shrouded Attributes, Consumer Myopia, and Information Suppression in Competitive Markets," *Quarterly Journal of Economics*, 121(2) (2006), pp. 505-40.

Ellison, G., "Bounded Rationality in Industrial Organization," in Richard Blundell, Whitney Newey, and Torsten Persson (eds.) *Advances in Economics and Econometrics: Theory and Applications, Ninth World Congress*, Cambridge University Press, 2006.

Grubb, M., "Behavioral Consumers in Industrial Organization: An Overview", *Review of Industrial Organization*, 47(3) (2015), pp. 247-58.

Heidhues, P, B. Koszegi and T. Murooka, "Inferior Products and Profitable Deceptions," Working Paper (2014).

Spiegler, R., *Bounded Rationality and Industrial Organization*, Oxford University Press (2011).



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Dy-Mon-Yr	Bl d/Room	Start	End	Building Name
11-JAN-17	RT 157	13:00	15:30	Rotman School of Management
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25-JAN-17	RT 157	13:00	15:30	Rotman School of Management
01-FEB-17	RT 157	13:00	15:30	Rotman School of Management
08-FEB-17	RT 157	13:00	15:30	Rotman School of Management
15-FEB-17	RT 157	13:00	15:30	Rotman School of Management
22-FEB-17	RT 157	13:00	15:30	Rotman School of Management
01-MAR-17	RTL1035	13:00	15:30	Rotman School of Management
08-MAR-17	RT 157	13:00	15:30	Rotman School of Management
15-MAR-17	RT 157	13:00	15:30	Rotman School of Management
22-MAR-17	RT 157	13:00	15:30	Rotman School of Management
29-MAR-17	RT 157	13:00	15:30	Rotman School of Management
05-APR-17	RTL1010	13:00	15:30	Rotman School of Management
12-APR-17	RT 133	13:00	15:30	Rotman School of Management
19-APR-17	RTL1030	13:00	15:30	Rotman School of Management
26-APR-17	RT 570	13:00	15:30	Rotman School of Management

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NB. Start times for events MAY NOT BEGIN until 10 minutes past the hour and end on the hour. The room MUST be vacated promptly as there may be another event scheduled immediately