Florida International University
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ECO7116
Microeconomic Theory II

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Course objectives
In this course we will learn non-cooperative game theory and apply it to theory of imperfect competition (industrial organization). The topics we will study are listed below. We will be directing much attention to the last topic: the economics of intermediation. The students are asked to present some papers and part of the textbook materials in class.

Course Requirements
Mid term exam (30%), Final exam (30%), Classroom presentations (40%)

Books
Required: Paul Belleflamme and Martin Peitz, 2015, *Industrial organization*, 2nd ed. (MIT Press).

Recommended:
Jean Tirole, 1989, *The theory of industrial organization* (MIT Press); the standard IO textbook
Gibbons, 1992, *Game theory for applied economists* (Princeton University Press); a master's level game theory book
Fudenberg and Tirole, 1990, *Game theory* (MIT); an advanced game theory textbook.

Course outline and readings
This syllabus is not a finished product. I may add more readings, depending on the progress we make.

1. Game theory basics
Required readings: Belleflamme and Peitz (BP), Appendix A

Recommended:
Rubinstein, 1995, John Nash: the master of economic modeling, *Scandinavian Journal of Economics*
Gul, 1997, A Nobel prize for game theorists: the contributions of Harsanyi, Nash and Selten, *Journal of Economic Perspectives*
Myerson, 1999, Nash equilibrium and the history of economic theory, *Journal of Economic Literature.*

Recommended: theory/math

Glicksberg, 1952, A further generalization of the Kakutani Fixed Point Theorem, with applications to Nash equilibrium points, *Proceedings of the American mathematical Society* 3

John Nash, 1951, Non-cooperative games, *Annals of Mathematics* 54, 286–295

R. Selten, 1975, Reexamination of the perfectness concept for equilibrium points in extensive games," *International Journal of Game Theory* 4, 25–55.

Chen, Friedman, Thisse, 1997, Boundedly rational Nash equilibrium: a probabilistic choice approach, *Games and Economic Behavior*

Empirical

Palacios-Huerta, I., 2003, Professionals play minimax, *Review of Economics Studies (RES)*

2. Standard oligopoly models
Required: BP, chapters 3 and 4

Recommended

Dixit, 1986, Comparative statics for oligopoly, *International Economic Review*

Krishna, 1989, Trade restrictions as facilitating practices, *Journal of International Economics*

Andersson, Argenton and Weibull, 2014, Robustness to strategic uncertainty in price competition, *Games and Economic Behavior*

Salant et al., 1983, Losses from horizontal merger: the effects of an exogenous change in industry structure on Cournot-Nash equilibrium, QJE

Denecere, Davidson, 1985, Incentives to form coalitions with Bertrand competition, *Rand Journal of Economics*

Singh and Vives, 1984, Price and quantity competition in a differentiated duopoly, *Rand Journal of Economics*

3. Product differentiation and non-price competition
Required: BP: chapters 5, 17

Recommended:

Hotelling, 1929, Stability in competition, *Economic Journal.*

Salop, 1979, Monopolistic competition with outside goods, *Bell Jouornal of Economics*

d'Aspremont, Gabszewicz, Thisse, 1979, On Hotelling's "Stability in competition," *Econometrica*

Thisse, Vives, 1988, On the strategic choice of spatial price policy, AER

De Palma et al., 1988, The principle of minimum differentiation holds under sufficient heterogeneity, *Econometrica*

Irman, Thisse, 1998, Competition in multi-characteristics space: Hotelling was almost right, JET

Gabszewicz, Thisse, 1979, Price competition, quality and income disparities, JET

Gabszewicz, Thisse, On the nature of competition with differentiated products, *Economic Journal*

Grossman, Shapiro, 1984, Informative advertising with differentiated products, RES

Klemperer, 1987, Markets with consumer switching costs, QJE

Shaked, Sutton, 1982, Relaxing price competition through product differentiation, JIndE

Shaked, Sutton, 1983, Natural oligopolies, *Econometrica*

Cremer, Marchand, Thisse, 1989, The public firm as an instrument for regulating an oligopolistic market, *Oxford Economic Papers.*
Cremer, Marchand, Thisse, 1991, Mixed oligopoly with differentiated products, IJIO

4. Strategic incumbents and entry
Required: BP, chapter 16

Recommended: theory
Dixit, 1980, The role of investment in entry deterrence, *Economic Journal*
Gabszewicz, Thisse, 1982, Entry (and exit) in a differentiated industry, JET
Amir and Stepanova, 2006, Second-mover advantage and price leadership in Bertrand duopoly, *Games and Economic Behavior*

Recommended: empirical
Pavan et. al., 2020, strategic entry and potential competition: evidence from compressed gas fuel retail, *International Journal of Industrial Organization*

5. Research and development
Required: BP, chapters 18, 19

Recommended
Dasgupta, Stiglitz, 1980, Uncertainty, industrial structure, and the speed of R&D, *Bell Journal of Economics*
d'Aspremont and Jacquemin, 1988, Cooperative and non-cooperative R&D with spillovers, *AER*
Gilbert, Newbery, 1982, Preemptive patenting and the persistence of monopoly, AER
Kamien et al., 1992, Research joint ventures and R&D cartels, AER
Lee, Wilde, 1980, Market structure and innovation: a reformulation, QJE
Lowry, 1979, Market structure and innovation, QJE
Reinganum, 1983, Uncertain innovation and the persistence of monopoly, AER
Miyagiwa and Wan, 2016, Innovation and the merger paradox, *Economics Letters*

6. Timing games and technology adoption
Required:
Hoppe, 2002, The timing of new technology adoption: theoretical models and empirical evidence, *Manchester School*

Further readings: applications
Bilodeau and Slivinski, 1996, Toilet cleaning and department chairing: volunteering a public service, *Journal of Public Economics*
Fudenberg and Tirole, 1985, Preemption and rent equalization in the adoption of new technology, *RES (*)*
Ghamawat and Nalebuff, 1984, Exit, *RAND*
Katz and Shapiro, 1987, R&D rivalry with licensing or imitation, AER
Riordan, 1992, Regulation and preemptive technology adoption, Rand
Reinganum, 1981, On the diffusion of new technology: a game theoretic approach, RES
Ozdenoren, Hoppe-Wewetzer, and Katsenos, 2021, Experimentation, learning, and preemption, CEPR DP13484

Hoppe, 2000, Second-mover advantages in the strategy adoption of new technology under uncertainty, IJIO

Hoppe and Lehmann-Grube, Second-mover advantages in dynamic quality competition, JEMS

Milliou and Perakis, 2011, Timing of technology adoption and product market competition, IJIO

Smirnov and Wait, 2015, Innovation in a generalized timing game, IJIO

Miyagiwa and Wan, 2024,

Empirical
Lerner and Wulf, 2007, Innovation and incentives: evidence from corporate R&D, REStat.

7. Repeated games and tacit collusion
Required: BP, chapter 14

Recommended: theory
Abreu, 1988, on the theory of infinitely repeated games with discounting, *Econometrica*,
Abreu, Dutta, and Smith, 1994, The Folk Theorem for repeated games: A NEU condition," *Econometrica* 62, 939–948
Bloch, 1996, Sequential formation of coalitions in game with fixed payoff divisions, GAEB

Recommended: applications
Abreu, 1986, Extremal equilibria of oligopolistic supergames, *Journal of Economic Theory*
Rotemberg and Saloner, 1986, A supergame theoretic models of price wars during booms, AER
Green and Porter, 1984, Non-cooperative collusion under imperfect price information, *Eonometrica*
Bernheim and Whinston, 1990, Multimarket contact and collusive behavior, RAND Journal
Bernheim and Whinston, 1998, Exclusive dealings, JPE

8: Static games of incomplete information
Recommended
Spulber, D. F., 1995, Bertrand competition when rivals' costs are unknown, *Journal of Industrial Economics*
Fudenberg and Tirole, 1986, A theory of exit in duopoly, *Econometrica.*

Recommended: math
John C. Harsanyi, 1967, Games with Incomplete Information Played by 'Bayesian' Players, I-III," *Management Science* 14, 159–182, 320–334, 486–502 (JSTOR)
John C. Harsanyi, "Games with randomly disturbed payoffs: a new rationale for mixed-strategy equilibrium points," *International Journal of Game Theory* 2 (1973), 1-23

9. Dynamic games of incomplete information

Required: BP, chapters 12, 13

Recommended: theory
Fudenberg and Tirole, 1991, Perfect Bayesian equilibrium and sequential equilibrium, *JET*

Kreps and Wilson, 1982, Sequential equilibria, *Econometrica*

In-Koo Cho and David M. Kreps, 1987, "Signaling games and stable equilibria, *Quarterly Journal of Economics*

Jeffrey S. Banks and Joel Sobel, 1987, Equilibrium selection in signaling games, *Econometrica*

Recommended: Applications

Milgrom and Roberts, 1982, Limit pricing and entry under incomplete information: an equilibrium analysis, *Econometrica*

Vesterlund, L., 2002, The informational value of sequential fundraising, *Journal of Public Economics*

Hoppe and Ozdenoren, 2005, Intermediation in innovation, IJIO

10. Regulating monopoly
Recommended:

Baron and Myerson, 1982, Regulating a monopoly with unknown costs, *Econometrica*

Musa and Rosen, 1978, Monopoly and quality, *Journal of Economic Theory*

11. Networks and standards
Required: BP, chapters 20 and 21

Recommended

Economides 1996, The economics of networks, IJIO

Farrell and Saloner, 1985, Standardization, compatibility and. innovation, *Rand Journal of Economics*

Farrell and Saloner, 1986, Installed base and compatibility: innovation product preannouncement and predation, AER

Kats and Shapiro, 1985, Network externalities, competition and compatibility, AER

Kats and Shapiro, 1986, Technology adoption in the presence of network externalities, AER

12. Market intermediation
Required: BP, chapters 22, 23

Recommended:

Spulber 1999, Market microstructure: intermediaries and the theory of the firm (Cambridge U)

Caillard and Julien, 2003, Chicken & egg: competition among intermediation service providers, *Rand Journal of Economics*

Damiano and Li, 2008, Competing matchmaking, *Journal of the European Economic Association*

Armstrong, 2006, competition in two-sided markets, *Rand Journal of Economics*

Rochet and Tirole, 2006, Two-sided markets: a progress report, *Rand Journal of Economics*