

**UNIVERSITY OF SOUTHERN CALIFORNIA**  
**MARSHALL SCHOOL OF BUSINESS**

GSBA 612  
Spring 2016

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**SELECTED ISSUES IN ECONOMIC THEORY II**

**COURSE DESCRIPTION**

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This syllabus describes a doctoral course in microeconomics. The course is divided into three basic modules: (1) game theory; (2) labor economics and contracting theory; and (3) organizational economics and the theory of the firm. Although formally a theory course, my key focus is in building economic intuition, and the theories covered are chosen because of their existing and potential applications in accounting, finance, and organizations.

**PREREQUISITES**

At least one semester of graduate-level price theory (presumably GSBA 602). That is, I presume a decent background in the basics of utility maximization under uncertainty, statistical decision theory, risk aversion, and moral hazard. Please see me if you have any questions or concerns about the required background.

**GRADING**

The course grade will be based on weekly assignments, two midterm examinations, and a final examination. The weights for the final grade are:

Class Participation	10%
Weekly Assignments	25%
Midterm Exam (March 2)	25%
Final Exam (May 4)	40%

Students are expected to read papers prior to class and may also be asked to present readings and their answers to homework assignments throughout the semester.

**OFFICE HOURS**

I am easily accessible via e-mail ([kjmurphy@usc.edu](mailto:kjmurphy@usc.edu)) and will be happy to schedule appointments on an individual and ad hoc basis. In addition, I am generally available after class and – based on student course schedules – can “negotiate” a mutually acceptable time for established office hours during the week.

## GSBA 612 SYLLABUS

- Session 1**  
*January 13*      **INTRODUCTION TO GAME THEORY:**  
**STATIC GAMES OF COMPLETE INFORMATION**  
Nash Equilibrium (vs. Smith and Coase)  
Cournot and Bertrand Models of Duopoly  
Arbitration  
Problem of the Commons
- Session 2**  
*January 20*      **DYNAMIC GAMES OF COMPLETE INFORMATION**  
Subgame Perfect Nash Equilibrium  
Backwards Induction  
Tournaments  
Repeated Games and the Folk Theorem
- Session 3**  
*January 27*      **STATIC GAMES OF INCOMPLETE INFORMATION**  
Bayesian Nash Equilibrium  
The Revelation Principle
- Session 4**  
*February 3*      **DYNAMIC GAMES OF INCOMPLETE INFORMATION,**  
**SIGNALING AND ADVERSE SELECTION**  
Perfect Bayesian Equilibrium  
Cheap Talk  
Job-Market Signaling  
Adverse Selection and the Market for Lemons
- Session 5**  
*February 10*      **LABOR ECONOMICS: A PRIMER**  
Labor Markets  
Neo-Classical Labor Supply and Demand  
Compensating Differentials  
General and Specific Human Capital  
Efficiency Wages
- Session 6**  
*February 17*      **THE ECONOMICS OF CONTRACTING**  
Optimal Piece Rates under Risk Neutrality  
Optimal Piece Rates under Risk Aversion  
The Tradeoff Between Risk and Incentives
- Session 7**  
*February 24*      **NON-LINEAR CONTRACTS AND THE INFORMATIVENESS PRINCIPLE**  
Non-Linear Incentive Contracts  
Multiple Performance Measures  
Relative Performance Evaluation  
The Informativeness Principle

- Session 8**      **MIDTERM**  
*March 2*
- Session 9**      **DISINCENTIVE CONTRACTS-I**  
*March 9*  
The Uninformativeness Principle  
Distorted Performance Measures (in a Multi-Task World)  
Stock-based vs. Accounting-based Performance Measures  
Subjective Performance Measures and Discretionary Bonuses
- Session 10**      **DISINCENTIVE CONTRACTS-II**  
*March 23*  
Problems with Non-Linear Contracts  
Pay-Performance Asymmetries and Risk Taking  
Restricted Stock, Stock Options, and Performance Shares
- Session 11**      **MULTI-ISH CONTRACTS**  
*March 30*  
Multi-agent agency problems  
Team Production and Profit Sharing  
Multi-period agency problems  
Dynamic Agency Contracts and Career Concerns
- Session 12**      **THE MARKET FOR TOP EXECUTIVES**  
*April 6*  
Managerial Capital and the Market for CEOs  
The Economics of Superstars  
Managerial Power vs. Efficient Contracting
- Session 13**      **EXPLAINING CEO PAY**  
*April 13*  
Managerial Power vs. Efficient Contracting?
- Session 14**      **THE THEORY OF THE FIRM**  
*April 20*  
The Nature of the Firm  
Transaction-Costs Economics  
Vertical Integration
- Session 15**      **INFORMATION AND AUTHORITY IN ORGANIZATIONS**  
*April 27*  
Formal and Informal Authority  
Delegation and Decentralization
- May 4**      **FINAL EXAMINATION (11:00AM – 1:00PM)**

### PRELIMINARY READING LIST

The purpose of this reading list is to give you a fairly broad exposure to at least the classic (if not the most recent) papers in the major topics we'll be covering. There is no expectation that you will read all of these during the semester.

The “*more* important” readings are marked with an “\*” and will be posted on Blackboard or available in the required text:

Mas-Colell, Andreu, Michael D. Whinston, and Jerry R. Green, 1995, *Microeconomic Theory*, Oxford University Press

The “*most* important” will be designated on the weekly assignments; these will typically involve readings directly applicable to the following or preceding lecture.

#### 1. INTRODUCTION TO GAME THEORY

\*Gibbons, Robert, 1997. An Introduction to Applicable Game Theory, *Journal of Economic Perspectives* 11(1), pp. 127-133.

\*Mas-Colell, Andreu, Michael D. Whinston, and Jerry R. Green, 1995, *Microeconomic Theory*, Chapters 7, 8.A-D, F.

Fudenberg, Drew and Jean Tirole, 1991, *Game Theory*, MIT Press, Chapter 1.

Gibbons, Robert, 1992, *Game Theory for Applied Economists*, Princeton University Press, Chapter 1.

#### 2. DYNAMIC GAMES OF COMPLETE INFORMATION

\*Gibbons, Robert, 1997. An Introduction to Applicable Game Theory, *Journal of Economic Perspectives* 11(1), pp. 133-137.

\*Mas-Colell, Andreu, Michael D. Whinston, and Jerry R. Green, 1995, *Microeconomic Theory*, Chapters 9.A-B; 12.D.

Fudenberg, Drew and Jean Tirole, 1991, *Game Theory*, MIT Press, Chapter 3, 5.

Gibbons, Robert, 1992, *Game Theory for Applied Economists*, Princeton University Press, Chapter 2.

### 3. STATIC GAMES OF INCOMPLETE INFORMATION

\*Gibbons, Robert, 1997. An Introduction to Applicable Game Theory, *Journal of Economic Perspectives* 11(1), pp. 138-147.

\*Mas-Colell, Andreu, Michael D. Whinston, and Jerry R. Green, 1995, Microeconomic Theory, Chapter 8.E, 9.C-D.

Fudenberg, Drew and Jean Tirole, 1991, Game Theory, MIT Press, Chapter 6.

Gibbons, Robert, 1992, *Game Theory for Applied Economists*, Princeton University Press, Chapters 3.

### 4. STATIC GAMES OF INCOMPLETE INFORMATION, SIGNALING, AND ADVERSE SELECTION

\*Mas-Colell, Andreu, Michael D. Whinston, and Jerry R. Green, 1995, Microeconomic Theory, Chapter 13C.

\*Akerlof, George, 1970, The Market for “Lemons”: Quantity Uncertainty and the Market Mechanism, *Quarterly Journal of Economics* 84, pp. 488-500.

\*Spence, Michael, 1973, Job Market Signaling, *Quarterly Journal of Economics* 87, pp. 355-74.

Fudenberg, Drew and Jean Tirole, 1991, Game Theory, MIT Press, Chapter 8.

Gibbons, Robert, 1992, *Game Theory for Applied Economists*, Princeton University Press, Chapters 3

### 5. LABOR ECONOMICS: A PRIMER

*Not* Mas-Colell, Andreu, Michael D. Whinston, and Jerry R. Green, 1995, Microeconomic Theory, no real mention of labor economics. Boggles the mind I’ll supply readings, or supply lecture notes.

### 6. THE ECONOMICS OF CONTRACTING

\*Baker, George P., Michael C. Jensen and Kevin J. Murphy, 1988. Compensation and Incentives: Practice vs. Theory, *Journal of Finance*, 43(3), 593-616.

\*Becker, Gary S. and George J. Stigler, 1974. Law Enforcement, Malfeasance, and Compensation of Enforcers, *Journal of Legal Studies*, 3(1), 1-18.

- \*Garen, John E. 1994. Executive Compensation and Principal-Agent Theory. *Journal of Political Economy*. 102(6) (December), 1175-1199.
- \*Haubrich, Joseph G., 1994. Risk Aversion, Performance Pay, and the Principal-Agent Problem, *Journal of Political Economy*, 102(2), 258-76.
- \*Jensen, Michael C. and Kevin J. Murphy, 1990. Performance Pay and Top Management Incentives, *Journal of Political Economy*, 98(2), 225-265.
- \*Lazear, Edward P. and Sherwin Rosen, 1981. Rank-Order Tournaments as Optimum Labor Contracts, *Journal of Political Economy*, 89(5), 841-864.
- \*Lazear, Edward P. and Sherwin Rosen, 1981. Rank-Order Tournaments as Optimum Labor Contracts, *Journal of Political Economy*, 89(5), 841-864.
- \*Lazear, Edward P., 1986. Salaries and Piece Rates, *Journal of Business*, 59(3) (July), pp. 405-431.
- \*Murphy, Kevin J., 1985. Corporate Performance And Managerial Remuneration - An Empirical Analysis, *Journal of Accounting & Economics*, 7(1-3), 11-42.
- \*Prendergast, Canice, 2002. The Tenuous Trade-off between Risk and Incentives, *Journal of Political Economy*, 110(5), 1071-1102.
- \*Zábojník, Ján, 1996. Pay-performance Sensitivity and Production Uncertainty, *Economic Letters*, 53(3), 291-296
- Aggarwal, Rajesh K. and Andrew A. Samwick, 1999. The Other Side of the Tradeoff: The Impact of Risk on Executive Compensation, *Journal of Political Economy*, 107(1), 65-105.
- Coughlan, Anne T. and Ronald M. Schmidt, 1985, Executive Compensation, Management Turnover, and Firm Performance: An Empirical Investigation, *Journal of Accounting and Economics*, 7(1-3), 43-66.
- Gibbons, Robert, 1987. Piece-rate Incentive Schemes, *Journal of Labor Economics*, 5(4:1), 413-429.
- Lazear, Edward P., 1979. Why Is There Mandatory Retirement? *Journal of Political Economy*, 87(6), 1261-1284.
- Prendergast, Canice, 1999. The Provision of Incentives in Firms, *Journal of Economic Literature*, 37(1), 7-63.

## 7. NON-LINEAR CONTRACTS AND THE INFORMATIVENESS PRINCIPLE

- \*Hart, Oliver D. and Bengt Holmstrom, 1987. The Theory of Contracts. In T. Bewley (ed.), *Advances in Economic Theory*, Fifth World Congress, University Press, Cambridge.
- \*Holmstrom, Bengt, 1979. Moral Hazard and Observability, *The Bell Journal of Economics*, 10(1), 74-91.
- \*Rogerson, William P. 1985. The First-Order Approach to Principal-Agent Problems. *Econometrica* 53(6), 1357-1367.
- Grossman, Sanford J. and Oliver D. Hart, 1983. An Analysis of the Principal-Agent Problem, *Econometrica*, 51(1), 7-45.
- Mirrlees, James A., 1974. Notes on Welfare Economics, Information, and Uncertainty, in M. Balch, D. McFadden, and S. Wu, eds, *Essays on Economic Behavior Under Uncertainty*, North Holland, Amsterdam.
- Mirrlees, James A., 1976. The Optimal Structure of Incentives and Authority within an Organization, *Bell Journal of Economics*, 7(1), 105-131.
- Ross, Stephen A., 1973. The Economic Theory of Agency: The Principal's Problem, *American Economic Review*, 63(2), 134-39.

### *Accounting vs. Stock-Price Performance Measures: Theory and Evidence*

- \*Banker, Rajiv D. and Srikant. M. Datar, 1989. Sensitivity, Precision, and Linear Aggregation of Signals for Performance Evaluation, *Journal of Accounting Research*, 27(1), 21-39.
- \*Lambert, R. and D. Larcker, 1988. An Analysis of the Use of Accounting and Market Measures of Performance in Executive Compensation Contracts, *Journal of Accounting Research*, 25(Supplement), 85-129.
- Datar, Srikant, Susan Cohen Kulp and Richard A. Lambert, 2001. Balancing Performance Measures, *Journal of Accounting Research* 39(1), 75-92.

## 8. MIDTERM

## 9. DISINCENTIVE CONTRACTS - I

- \*Baker, George P., 1992. Incentive Contracts and Performance Measurement, *Journal of Political Economy* 100(3), 598-614

- \*Baker, George P., 2002. Distortion and Risk in Optimal Incentive Contracts, *Journal of Human Resources*, 37(4), 728-751.
- \*Baker, George P., Robert Gibbons and Kevin J. Murphy, 1994. Subjective Performance Measures in Optimal Incentive Contracts, *Quarterly Journal of Economics*, 109(4), 1125-1156.
- \*Bull, Clive, 1987. The Existence of Self-Enforcing Implicit Contracts, *Quarterly Journal of Economics*, 102(1), 147-59.
- \*Feltham, Gerald A. and Jim Xie, 1994. Performance Measure Congruity and Diversity in Multi-Task Principal/Agent Relations. *Accounting Review* 69(3), 429-453.
- \*Holmstrom, Bengt, and Paul Milgrom, 1991. Multitask Principal-Agent Analyses: Incentive Contracts, Asset Ownership, and Job Design, *Journal of Law, Economics, and Organization*, 7(Special issue), 24-52.
- \*Kerr, Steven, 1975. On the Folly of Rewarding A, While Hoping for B. *Academy of Management Journal*, 18(4), 769-783.
- \*Klein, Benjamin and Keith Leffler, 1980. The Role of Market Forces in Assuring Contractual Performance, *Journal of Political Economy*, Vol. 89, pp. 615-641
- \*Murphy, Kevin J. and Paul Oyer, 2004. Discretion in Executive Incentive Contracts, USC Working Paper.
- \*Prendergast, Canice and Robert H. Topel. 1996. Favoritism in Organizations. *Journal of Political Economy*, Vol. 104, No. 5., pp. 958-978.
- Bushman, Robert M., R. J. Indjejikian and Abbie Smith, 1996. CEO Compensation: The Role of Individual Performance Evaluation, *Journal of Accounting and Economics*, 21(2), 161-193.
- Courty, Pascal, and Gerald Marschke, 2004. An Empirical Investigation of Gaming Responses to Explicit Performance Incentives, *Journal of Labor Economics*, 22(1), 23-56.
- Dechow, Patricia M and Richard G. Sloan, 1991. Executive Incentives and the Horizon Problem - An Empirical Investigation, *Journal of Accounting and Economics*, 14(1), 51-89.
- Holthausen, Richard, David Larcker and Richard G. Sloan, 1995. Annual Bonus Schemes and the Manipulation of Earnings, *Journal of Accounting and Economics*, 19(1), 29-74.
- Jensen, Michael C., 2003. Paying People to Lie: The Truth About the Budgeting Process. *European Financial Management*, 9(3), 379-40.
- Levin, Jonathan, 2003. Relational Incentive Contracts, *American Economic Review*, 93, pp. 835-857.



MacLeod, W. Bentley and James M. Malcomson, 1998. Motivation and Markets, *American Economic Review*, 88(3), 388-411.

## **10. DISINCENTIVE CONTRACTS - II**

\*Healy, Paul M., 1985. The Effect of Bonus Schemes on Accounting Decisions, *Journal of Accounting and Economics*, 7(1-3), 85-112

\*Murphy, Kevin J. and Michael C. Jensen, CEO Bonus Plans and How to Fix Them, Working Paper (November 2011).

\*Murphy, Kevin J., 2001. Performance Standards in Incentive Contracts, *Journal of Accounting and Economics*, 30(3), 245-278

\*Oyer, Paul, 1998. Fiscal Year Ends and Nonlinear Incentive Contracts: The Effect on Business Seasonality, *Quarterly Journal of Economics*, 113(1), 149-85.

Gaver, Jennifer, Kenneth M. Gaver and Jeffrey R. Austin, 1995. Additional Evidence on Bonus Plans and Income Management, *Journal of Accounting and Economics*, *Journal of Accounting and Economics*, 19(1), 3-28.

## **11. MULTI-ISH CONTRACTS**

### ***Relative Performance Evaluation: Theory and Evidence***

\*Antle, Rick and Abbie Smith, 1986. An Empirical Investigation of the Relative Performance Evaluation of Corporate Executives, *Journal of Accounting Research*, 24(1), 1-39.

\*Gibbons, Robert and Kevin J. Murphy, 1990. Relative Performance Evaluation for Chief Executive Officers, *Industrial and Labor Relations Review*, 43(3), 30S-51S.

Aggarwal, Rajesh K. and Andrew A. Samwick, 1997. Executive Compensation, Strategic Competition, and Relative Performance Evaluation: Theory and Evidence, *Journal of Finance*, 54(6), 1999-2043.

Janakiraman, Surya N., Richard A. Lambert and David F. Larcker, 1992. An Empirical Investigation of the Relative Performance Evaluation Hypothesis, *Journal of Accounting Research*, 30(1), 53-69.

Lazear, Edward, 1989. Pay Equality and Industrial Politics, *Journal of Political Economy*, 97(3), 561-80.

Rajgopal, Shivaram, Terry J. Shevlin and Valentina Zamora, 2006. CEOs' Outside Employment Opportunities and the Lack of Relative Performance Evaluation in Compensation Contracts, *Journal of Finance*, 61(4), 1813-1844.

Sloan, Richard, 1993. Accounting Earnings and Top Executive Compensation, *Journal of Accounting and Economics*, 16(1-2-3), 55-100.

### ***Rewarding Group Performance***

\*Hall, Brian J., and Kevin J. Murphy, 2003, The Trouble with Stock Options, *Journal of Economic Perspectives* 17, 49-70.

\*Holmstrom, Bengt, 1982. Moral Hazard in Teams, *Bell Journal of Economics*, 13(2), 324-340.

\*Oyer, Paul and Scott Schaefer, 2005. Why Do Some Firms Give Stock Options to All Employees?: An empirical Examination of Alternative Theories, *Journal of Financial Economics*, 76(1), 99-133

\*Oyer, Paul, 2004. Why Do Firms Use Incentives that Have No Incentive Effects? *Journal of Finance*, 59(4), 1619-1649

Kandel, Eugene and Edward P. Lazear, 1992. Peer Pressure and Partnership, *Journal of Political Economy*, 100(4), 801-17.

### ***Dynamic Agency Contracts and Career Concerns***

\*Fama, E., 1980. Agency Problems and the Theory of the Firm, *Journal of Political Economy*, 88(2), 288-307.

\*Gibbons, Robert, and Kevin J. Murphy, 1992. Optimal Incentive Contracts in the Presence of Career Concerns: Theory and Evidence, *Journal of Political Economy*, 100(3), 468-505.

\*Harris, M. and B. Holmstrom, 1982. A Theory of Wage Dynamics *Review of Economic Studies*. July 1982; 49(3): 315-33

\*Holmstrom, Bengt, 1982. Managerial Incentive Problems--A Dynamic Perspective, Republished in *Review of Economic Studies*, 1999, 66 (1), 169-182.

\*Lambert, Richard A., 1983, Long-Term Contracts and Moral Hazard, *Bell Journal of Economics*, 14(2): 441-452.

\*Murphy, Kevin J., 1986. Incentives, Learning, and Compensation: a Theoretical and Empirical Investigation of Managerial Labor Contracts, *Rand Journal of Economics*, 17(1), 59-76.

\*Rogerson, William P., 1985. Repeated Moral Hazard, *Econometrica*. 53(1): 69-76.

## **12. THE MARKET FOR TOP EXECUTIVES**

\*Edmans, Alex, and Xavier Gabaix, 2009. Is CEO Pay Really Inefficient? A Survey of New Optimal Contracting Theories, *European Financial Management* 15.

\*Gabaix, Xavier, and Augustin Landier, 2008. Why has CEO Pay Increased So Much?, *Quarterly Journal of Economics* 123, 49-100.

\*Murphy, Kevin J., and Jan Zájbojník, 2008. Managerial Capital and the Market for CEOs.

\*Rogerson, Richard; Robert Shimer, and Randall Wright, 2005. Search-Theoretic Models of the Labor Market: A Survey *Journal of Economic Literature*. (December) 43(4): 959-88.

\*Rosen, Sherwin, 1981, The Economics of Superstars *American Economic Review*, Dec. 1981.

\*Rosen, Sherwin, 1982, Authority, Control, and the Distribution of Earnings, *Bell Journal of Economics*, 13(2), 311-323.

\*Roy, A. D., 1951. Some Thoughts on the Distribution of Earnings, *Oxford Economic Papers*.

\*Salop, Joanne and Steven Salop, 1976. Self-Selection and Turnover in the Labor Market, *Quarterly Journal of Economics*, 90(4) (November), pp. 619-627.

Jovanovic, Boyan. 1979. Job Matching and the Theory of Turnover *Journal of Political Economy*, October 1979.

MacDonald, G. The Economics of Rising Stars, *American Economic Review* 78 (March 1988): 155-66.

## **13. EXPLAINING CEO PAY**

\*Bebchuk, Lucian A., Jesse M. Fried, and David I. Walker, 2002. Managerial Power and Rent Extraction in the Design of Executive Compensation, *University of Chicago Law Review* 69, 751-846. <http://papers.ssrn.com/abstract=316590>

\*Bebchuk, Lucian Arye, and Jesse M. Fried, 2003. Executive Compensation as an Agency Problem, *Journal of Economic Perspectives* 17, 71+.

\*Frydman, Carola, and Dirk Jenter, 2010. CEO Compensation, *Annual Review of Financial Economics* 2, 75-102.

\*Murphy, Kevin J., "Executive Compensation: Where we are, and how we got there," Chapter 4 in George Constantinides, Milton Harris, and René Stulz (eds.), *Handbook of the Economics of Finance*. Elsevier Science North Holland (2013).

\*Murphy, Kevin J., 2002. Explaining Executive Compensation: Managerial Power vs. the Perceived Cost of Stock Options, *University of Chicago Law Review* 69, 847-869.

#### **14. THE THEORY OF THE FIRM**

\*Alchian, Armen and Harold Demsetz, 1972. Production, information costs and economic organization, *American Economic Review*, 62:777-795.

\*Baker, George, Robert Gibbons and Kevin J. Murphy, 2002. Relational contracts and the Theory of the Firm, *Quarterly Journal of Economics*, 117:39-83

\*Coase, Ronald, 1937. The Nature of the Firm, *Economica*, 4:386-405

\*Gibbons, Robert (2005), Four Formal(izable) Theories of the Firm?, *Journal of Economic Behavior and Organization*, 58 (2005): 202-47

\*Grossman, Sanford and Oliver Hart, 1986. The Costs and Benefits of Ownership: A Theory of Vertical and Lateral Integration, *Journal of Political Economy* 94:691-719

\*Klein, Benjamin, Robert Crawford, and Armen Alchian, 1978. Vertical Integration, Appropriable Rents and the Competitive Contracting Process, *Journal of Law and Economics* 21, 297-326.

\*Michael C. Jensen and William H. Meckling. 1976. Theory of the Firm: Managerial Behavior, Agency Costs, and Ownership Structure. *Journal of Financial Economics*, Vol. 3, No. 4: October, pp. 305-360

\*Williamson, Oliver, 1971. The Vertical Integration of Production: Market Failure Considerations, *American Economic Review*, 61:112-123

\*Williamson, Oliver, 2002. The Theory of the Firm as Governance Structure, *Journal of Economic Perspectives*, 16:171-195

Hart, Oliver and John Moore, Property Rights and the Nature of the Firm, 1990. *Journal of Political Economy* 98, 1119-58.

Holmstrom, Bengt and Paul Milgrom, 1994. The Firm as an Incentive System, *American Economic Review*, 84:972-991

Holmstrom, Bengt, 1999. The Firm as a Subeconomy, *Journal of Law, Economics and Organization*, 15(1):74-102

Milgrom, Paul and John Roberts (1988), An Economic approach to influence activities in organizations, *American Journal of Sociology*, 94:S154-S179

Whinston, Michael. (2003), On the transaction cost determinants of vertical integration, *Journal of Law, Economics and Organization*, 19:1-23

## 15. INFORMATION AND AUTHORITY IN ORGANIZATIONS

\*Aghion, Phillip and Jean Tirole. 1997. Formal and Real Authority in Organizations. *Journal of Political Economy* 105:1-29.

\*Alonso, R., W. Dessein and N. Matoushek, 2008. When Does Coordination Require Centralization? *American Economic Review*, 98(1):145-79

\*Baker, George, Robert Gibbons and Kevin J. Murphy, 1999. Informal Authority in Organizations, *Journal of Law, Economics and Organization*, 15(1):56-73

\*Baker, George, Robert Gibbons and Kevin J. Murphy. 2012. Relational Adaptation. USC Working Paper.

\*Dessein, W. (2002), Authority and Communication in Organizations, *Review of Economic Studies* 69:811-838

\*Garicano, L. (2000), Hierarchies and the organization of knowledge in production, *Journal of Political Economy*, 108:874-904

Alonso, R. and N. Matouschek (2008), Optimal delegation, *Review of Economic Studies*, 75(1):259-293

Bolton, P. and M. Dewatripont, 1994. The Firm as a Communication Network, *Quarterly Journal of Economics*, 109:809-39

Crawford, V. and J. Sobel (1982), Strategic Information Transmission, *Econometrica*, 50:1431-1451

Rantakari, H. (2008), Governing Adaptation, *Review of Economic Studies*, 75:1257–1285