University Paris Panthéon-Assas

Applied Game Theory

The theory of costly signaling: applications in economics

Spring term 2026

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Thursday, 9-11h5
Week 1 – 6
Salle 43, Centre Desgoffe

We investigate games of incomplete information and apply them to the study of signaling and strategic information transmission.

Session 1. Review of the basics of game theory in the context of a costly-signaling game
Session 2. Sequential Bayesian Nash equilibrium in signaling games: focus on Bayesian updating of beliefs along the equilibrium path
Session 3. Recovering equilibria in the game matrix
Session 4. Sequential Bayesian Nash equilibrium in signaling games: focus on what happens "off the equilibrium path"
Session 5. Applications: education, advertising, dividend payments
Session 6. Summary

Evaluation *of the course* *is based on a final oral exam.*

Problem-set sessions

Salle 43, Centre Desgoffe
Wednesday, February 18: 11h30-13h
Wednesday, February 25: 14h-17h
Wednesday, March 4: 9h-12h

Evaluation *of the problem-set sessions* *is based on:*

- Your participation during the sessions, including
- your presentation of one of the topics listed below.

Topic 1. Review of Spence (1973) including a discussion of how it relates to the discrete costly-signaling model discussed in class.
Spence, M. 1973. "Job market signaling." *The Quarterly Journal of Economics* 87 (3): 355–374.

Topic 2. Review and comparison of Zahavi (1975) and Grafen (1990).
Zahavi A (1975) Mate selection–a selection for a handicap. J Theor Biol 53(1): 205–214
Grafen A (1990) Biological signals as handicaps. J Theor Biol 144(4):517–546

Topic 3. Review of Milgrom and Roberts (1986) including a discussion of how it relates to the discrete costly-signaling model discussed in class.
Milgrom P., Roberts, J. 1986. "Price and advertising signals of product quality." *The Journal of Political Economy* 94(4): 796–821.

Topic 4. Review of Miller and Rock (1985) including a discussion of how it relates to the discrete costly-signaling model discussed in class.
Miller, M. H., Rock, K. 1985. "Dividend policy under asymmetric information." *The Journal of Finance* XL (4), 1031–1051.

Topic 5. Review of Kamenica and Gentzkow (2011) including a discussion of how it relates to the discrete costly-signaling model discussed in class.
Kamenica, E., Gentzkow, M. (2011). "Bayesian Persuasion." American Economic Review 101, 2590–2615.