

ECON5610  
Cheap Talk: Theory & Experiment (PhD)  
Time: 9:00am-12:30pm Wednesday  
Location: LSK 1032

Instructor: Wooyoung Lim  
Office: LSK 6080  
Office Hours: by appointment  
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## 1 Course Objective

The course covers game-theoretic works on communication. We will maintain a healthy balance between classic / core papers and more recent papers, and between theory papers and experimental papers. Some of topics covered will be sender-receiver games, mediated communication, psychological aspects of communication, and game theory at the intersection of economics and linguistics. The goal is to stimulate original (theoretical and/or experimental) research in one of these areas.

## 2 Grading

If you are enrolled for credit, you will be asked to present a number of papers from the reading list, prepare and present a research proposal and write a short paper. If you audit the class, you will be involved in presenting papers like everyone else but will not have to prepare a research proposal or have to write a paper.

The research proposal should have a minimum length of three pages and is due at the beginning of our **8th** meeting (March 29). A first draft of your paper (in case of theory ideas) or extended proposal (for experimental ideas) is due at the beginning of the last class (May 03) and you should be prepared to give a short presentation (20-30 mins) of what you have found. The final version of your paper (for theory ideas) or proposal (for experimental ideas) is due at the last day of Spring term (May 29).

The final grading will be based on your presentations and the final paper / proposal.

**Guidelines for presentation:** You are going to read one paper in every two weeks to present. **We will jointly decide what paper each person reads and presents biweekly.**

I expect each presenter to read the paper carefully and understand essential (all if you can) proofs for the theory paper. Each presentation lasts 100 minutes so that the presenter has to go in great details and depth. At the end of your presentation, discuss

1. what the main contributions of the paper are,

2. what the main shortcomings are,
3. if you have some ideas to improve / change the model in theory and the design in experiment, and
4. if you can extend the paper to a meaningful direction.

**Guidelines for theory paper:** I expect the paper to have a minimum length of eight pages (not including title page and references), to contain a result stated in the form of a proposition and a proof of that proposition. The paper should be written in L<sup>A</sup>T<sub>E</sub>X; have a title page; a 150 word abstract that clearly explains the question asked and the key result; an introduction that elaborates on the abstract; a section that sets up, motivates and explains the model; a result section that states and proves the key results; and a concluding section that states concisely what the punchline of the paper is.

**Guidelines for experimental paper:** I expect the paper to have a minimum length of nine pages (not including title page and references), to contain a main question stated in the form of a testable hypothesis. The paper should be written in L<sup>A</sup>T<sub>E</sub>X; have a title page; a 150 word abstract that clearly explains the question asked and the key expected result; an introduction that elaborates on the abstract; a section that sets up, motivates research questions and explains theoretical background; experimental hypothesis and procedure section that states the testable hypotheses and experimental design clearly; a small section that present some expected results and some methods to analyze the data; and a concluding section that states concisely what the punchline of the paper is.

**Research Funding Support:** After grading the original research proposals submitted, I am going to select one or two projects to pursue the departmental grant (HKD 20,000) for each selected project. The funding will be used (restrictively) to support the experimental subject payment.

## 3 Reading List

### 3.1 Preliminary: Methodology - Experiments

1. Alvin Roth [1986], "Laboratory Experimentation in Economics," *Economics and Psychology*, 2, 245–273.
2. Armin Falk and Heckman, J. James [2009], "Lab Experiments Are a Major Source of Knowledge in the Social Sciences," *Science*, 326, 535–538.
3. Colin F. Camerer et al. [2016], "Evaluating replicability of laboratory experiments in economics," *Science*.

4. David Levine [2009], “The Relationship of Economic Theory to Experiments.”
5. Ariel Rubinstein [2006], “Dilemmas of An Economic Theorist,” Presidential Address, *Econometrica*, 74, 865–883.

### 3.2 Week 2: Cheap-talk: Fundamentals

1. David Lewis [1969], *Convention: A Philosophical Study*, Harvard University Press.
- ★ Vince Crawford and Joel Sobel [1982], “Strategic information transmission,” *Econometrica*, 50, 1431–1451.

### 3.3 Week 3-4: Equilibrium Selection

- (T1) Joseph Farrell [1993], “Meaning and Credibility in Cheap-Talk Games,” *Games and Economic Behavior*, 5, 514–531.
- (T2) Chen, Ying, Navin Kartik, Joel Sobel [2008], “Selecting Cheap-Talk Equilibria.” *Econometrica*, 76: 117–136.
- (T3) Gordon, Sidartha, Navin Kartik, Melody Pei-yu Lo, Wojciech Olszewski, and Joel Sobel [2022] “Effective Communication in Cheap-Talk Games.” *working paper*
- (T4) Blume, Andreas [2022] “Meaning in Communication Games” *working paper*
- (E1) Lai, Ernest and Wooyoung Lim [2018], “Meaning, its Evolution, and Credibility in Experimental Cheap-Talk Games,” *Quantitative Economics*, 9, 1453-1487.
- (E2) De Groot Ruiz, Adrian, Theo Offerman, and Sander Onderstal [2015], “Equilibrium Selection in Experimental Cheap Talk Games.” *Games and Economic Behavior*, 91: 14-25.
- (E3) Kawagoe, Toshiji, and Hirokazu Takizawa, [2008], “Equilibrium Refinement vs. Level-k Analysis: An Experimental Study of Cheap-Talk Games with Private Information.” *Games and Economic Behavior*, 66: 238-255.

### 3.4 Week 5-6: Communication Design

- (T1) Blume, Andreas, Oliver J. Board, and Kohei Kawamura. [2007], “Noisy Talk.” *Theoretical Economics*, 2: 395–440.
- (T2) Goltsman, Maria, Johannes Hörner, Gregory Pavlov, and Francesco Squintani [2009], “Mediation, Arbitration and Negotiation.” *Journal of Economic Theory*, 144: 1397–1420.
- (T3) Krishna, Vijay and John Morgan [2004], “The Art of Conversation: Eliciting Information from Experts through Multi-Stage Communication.” *Journal of Economic Theory*, 117: 147–179.

- (T4) Lee, Young-Ju, Wooyoung Lim, and Chen Zhao [2023], “Cheap Talk with Prior-biased Inferences,” *Games and Economic Behavior*.
- (E1) Blume, Andreas, Ernest K. Lai, and Wooyoung Lim [2019], “Eliciting Private Information with Noise: The Case of Randomized Response,” *Games and Economic Behavior*, 113, 356–380.
- (E2) Blume, Andreas, Ernest K. Lai, and Wooyoung Lim [2023], “Mediated Talk: An Experiment,” *Journal of Economic Theory*, 208, 105593.

### 3.5 Week 7: Multi-sender, Multi-receiver, Multi-dimensional Cheap-talk

- (A) Battaglini, Marco [2002] “Multiple Referrals and Multidimensional Cheap Talk.” *Econometrica*, 50, 1431–1451.
- (A) Attila Ambrus and Satoru Takahashi [2008] “Multi-Sender Cheap Talk with Restricted State Space,” *Theoretical Economics*, 3, 1–27.
- (A) Lai, Ernest K., Wooyoung Lim, and Joseph Tao-Yi Wang [2015] “An experimental analysis of multidimensional cheap talk.” *Games and Economic Behavior*, 91, 114–144.
- (A) Vespa, Emmanuel, and Alistair. J. Wilson [2016] “Communication with multiple senders: an experiment.” *Quantitative Economics*, 7, 1–36.
- (B) Farrell, J., and R. Gibbons [1989] “Cheap Talk with Two Audiences.” *American Economic Review*, 79, 1214–1223.
- (B) Battaglini, Marco., and U. Makarov [2011] “Cheap Talk with Multiple Audiences: An Experimental Analysis.” *Games and Economic Behavior*, 83, 147–164.
- (C) Gilligan, T.W., Krehbiel, K. [1989] “Asymmetric information and legislative rules with a heterogeneous committee,” *American Political Science Review*, 33, 459–490.
- (C) Krishna, V., Morgan, J. [2001] “Asymmetric information and legislative rules,” *American Journal of Political Science*, 95, 435–452.
- (C) Battaglini, Marco, Ernest K. Lai, Wooyoung Lim, and Joseph Tao-Yi Wang [2019] “The Informational Theory of Legislative Committees: An Experimental Analysis,” *American Political Science Review*, 113, 55–76.

### 3.6 Week 8: Emergence of Meaning and Grammar

- (A) Andreas Blume, Douglas V. DeJong Yong-Gwan Kim and Geoffrey B. Sprinkle [1998], “Experimental Evidence on the Evolution of Meaning of Messages in Sender-Receiver Games,” *American Economic Review*, 88, 1323–1340.

- (A) Bruner, J., C. O'Connor, H. Rubin, and S. M. Huttegger [2014], "David Lewis in the Lab: experimental results on the emergence of meaning," *Synthese*, doi:10.1007/s11229-014-0535-x.
- (A) Weber, Roberto, and Colin Camerer [2003], "Cultural Conflict and Merger Failure: An experimental approach." *Management Science*, 49: 400–415.
- (B) Blume, Andreas [2005], "A Learning-Efficiency Explanation of Structure in Language." *Theory and Decision*, 57: 265–285.
- (B) Selten, Reinhard, and Massimo Warglien [2007], "The emergence of simple languages in an experimental coordination game," *Proceedings of the National Academy of Sciences of the United States of America*, 104, 7361–7366.
- (B) Fuhai Hong, Wooyoung Lim, and Xiaojian Zhao [2017], "The Emergence of Compositional Grammars in Artificial Codes." *Games and Economic Behavior*.102: 255-268.

### 3.7 Week 9-10: Lying, Deception, and Over-communication

- (A) Sobel, Joel [2020], "Lying and Deception in Games," *Journal of Political Economy*, 128, 907-947.
- (A) Uri Gneezy [2005], "Deception: The role of consequences," *American Economic Review*, 95, 384–394.
- (B) Hongbin Cai and Joseph Tao-Yi Wang [2006], "Overcommunication in Strategic Information Transmission Games," *Games and Economic Behavior*, 56, 7–36.
- (B) Wang, Joseph Tao-yi, Michael Spezio, and Colin F. Camerer [2010], "Pinocchio's Pupil: Using Eyetracking and Pupil Dilation to Understand Truth Telling and Deception in Sender-Receiver Games," *American Economic Review*, 100, 984–1007.
- (C) Fischbacher, Urs, and Franziska Föllmi-Heusi [2013], "Lies in Disguise—An Experimental Study on Cheating," *Journal of European Economic Association*, 11, 525–547.
- (C) Abeler, Johannes, Daniele Nosenzo, and Collin Raymond [2019], "Preferences for truth-telling", *Econometrica*, 87, 1115-1153.
- (C) Gneezy, Uri, Agne Kajackaite, and Joel Sobel [2018], "Lying Aversion and the Size of the Lie," *American Economic Review*, 108, 419-453.
- (D) Gibson, Rajna, Carmen Tanner, and Alexander Wagner [2013], "Preferences for Truthfulness: Heterogeneity among and within Individuals," *American Economic Review*, 103: 532–548.

- (D) Lafky, Jonathan, Ernest Lai, and Wooyoung Lim [2022], “Preferences vs. Strategic Thinking: An Investigation of the Causes of Overcommunication.” *Games and Economic Behavior*, 136, 92-116.

### 3.8 Week 11-12: Persuasion

- (T1) Kamenica, Emir, and Matthew Gentzkow [2011], “Bayesian Persuasion,” *American Economic Review* 101, 2590–2615.
- (T2) Archishman Chakraborty and Rick Harbaugh [2010], “Persuasion by Cheap Talk,” *American Economic Review*, 100, 2361–82.
- (T3) Jacob Glazer and Ariel Rubinstein [2004] “On Optimal Rules of Persuasion,” *Econometrica*, 72, 1715–1736.
- (E1) Guillaume Fréchette, Alessandro Lizzeri, and Jacopo Perego [2022] “Rules and Commitment in Communication: An Experimental Analysis”, *Econometrica*, 90, 2283-2318.
- (E2) Pak Hung’s working paper

### 3.9 Disclosure

- (A) Milgrom, Paul [1981] “Good news and bad news: Representation theorems and applications.” *Bell Journal of Economics*, 12, 380-391.
- (A) Milgrom, Paul, and John Roberts [1986] “Relying on the information of interested parties.” *RAND Journal of Economics*, 17, 18-32.
- (A) Jin. G. Z., M. Luca, and D. Martin [2021] “Is No News (Perceived as) Bad News? An Experimental Investigation of Information Disclosure,” *American Economic Journal: Microeconomics*, 13, 141-173.
- (B) Hagenbach, J., F. Koessler, and E. Perez-Richet [2014] “Certifiable Pre-Play Communication: Full Disclosure”, *Econometrica*, 82, 1093–1131.
- (B) Hagenbach, J., E. Perez-Richet [2018] “Communication with Evidence in the Lab”, *Games and Economic Behavior*, 112, 139-165.

### 3.10 Higher-Order Uncertainty about Language, Vagueness and Ambiguity

1. Ariel Rubinstein [1989], “The Electronic Mail Game: Strategic Behavior under Almost Common Knowledge,” *American Economic Review* 79, 385–391.
2. Andreas Blume and Oliver Board [2013], “Language Barriers,” *Econometrica*, 81, 781–812.

3. Francesco Giovannoni and Siyang Xiong [2019], “Communication Under Language Barriers.” *Journal of Economic Theory*, 180, 274-303.
4. Wooyoung Lim and Qinggong Wu [2017], “Vague Language and Context-Dependence.” working paper.
5. Christian Kellner and Mark T. Le Quement [2018], “Endogenous Ambiguity in Cheap Talk.” *Journal of Economic Theory*, 173, 1–17.
6. Serra-Garcia, Marta, Eric van Damme, and Jan Potters [2011], “Hiding an inconvenient truth: Lies and vagueness.” *Games and Economic Behavior* 73, 244-261.
7. Agranov, Marina, and Andrew Schotter [2012], “Ignorance is Bliss: an Experimental Study of the Use of Ambiguity and Vagueness in the Coordination Games with Asymmetric Payoffs.” *American Economic Journal: Microeconomics* 4, 77-103.

### 3.11 Cheap-talk in Network

1. Hagenbach, Jeanne, and Frédéric Koessler [2010], “Strategic Communication Networks,” *Review of Economic Studies* 77, 1072–1099.
2. Galeotti, Andrea, Christian Ghiglini and Francesco Squintani [2013], “Strategic Information Transmission Networks,” *Journal of Economic Theory*, 148, 1751–1769.

### 3.12 Information Acquisition in Cheap Talk

1. TW Gilligan, K Krehbiel [1987], “Collective decisionmaking and standing committees: An informational rationale for restrictive amendment procedures,” *Journal of Law, Economics, & Organization* 3 (2), 287-335.
2. Rossella Argenziano, Sergei Severinov, Francesco Squintani [2016], “Strategic Information Acquisition and Transmission,” *AEJ-Micro* 8, 119–155.
3. Henry Di Pei [2015], “Communication with endogenous information acquisition” *Journal of Economic Theory* 160, 132–149.

### 3.13 Repeated Cheap-talk

1. Aumann, Robert, and Sergiu Hart [2003], “Long Cheap Talk,” *Econometrica* 71, 1619–1660.
2. Sobel, Joel [1985], “A theory of credibility,” *Review of Economic Studies*, 52, 557–573.
3. Renault, J., E. Solan, and N. Vieille [2013], “Dynamic sender-receiver games,” *Journal of Economic Theory*, 148, 502–534.

4. Golosov, M., V. Skreta, A. Tsyviski, and A. Wilson [2014], “Dynamic strategic information transmission,” *Journal of Economic Theory*, 151, 304–341.
5. Morris, Stephen [2001] “Political Correctness,” *Journal of Political Economy*, 109, 231-265.
6. Vespa, Emanuel and Alistair J. Wilson [2020], “Information Transmission Under The Shadow of The Future: An Experiment,” *American Economic Journal: Microeconomics*, 12, 75-98.

### **3.14 Cheap-talk: Surveys**

1. Sobel, Joel [2013], “Giving and Receiving Advice,” *Advances in Economics and Econometrics*. Ed. Daron Acemoglu, Manuel Arellano, and Eddie Dekel. 1st ed. Vol. 1. Cambridge: Cambridge University Press, 305–341.
2. Crawford, Vincent [1998], “A Survey of Experiments on Communication via Cheap Talk,” *Journal of Economic Theory*, 78, 286–298.
3. Sobel, Joel [2013], “Ten possible experiments on communication and deception,” *Journal of Economic Behavior & Organization*, 93, 408–413.
4. Blume, Andreas, Wooyoung Lim, and Ernest K. Lai [2020], “Strategic Information Transmission: A Survey of Experiments and Theoretical Foundations.” C. Monica Capra, Rachel Croson, Mary Rigdon and Tanya Rosenblat (eds), *Handbook of Experimental Game Theory*, Cheltenham, UK and Northampton, MA, USA: Edward Elgar Publishing.