

SPS 3rd term workshop 2024 – 2025

Applications of Game Theory

Sponsoring Professor: Elias Dinas

Guest Lecturer: Professor Itai Sened

Faculty of Social Sciences, Tel Aviv University

E-mail: sened@tauex.tau.ac.il - [Bio](#)

Contact: Claudia.Fanti@eui.eu

Dates and venue: Thursday 10 April 2025, 10:00-16:00, Seminar Room 2, Badia
Friday 11 April 2025, 10:00-16:00, Seminar Room 2, Badia

Credits: 10

Purpose of the workshop

Get you acquainted with what to do with Game theoretic tools

A couple of months ago, visiting the Alberto Carlos Collegio in Torino, I came across a theoretical paper in labor economics that looked just like the kind of paper I would write as a Ph.D. student in Rochester, 35 years ago. This prompted me to come to EUI and try to explain how it all started. Game Theory was not supposed to be a subfield in Applied Economics or Political Science. When my late and beloved mentor, W.H. Riker introduced and insisted on that we use Game Theory in the Social Sciences, he meant it to be a methodological tool best suited to enhance the quality of theory in the social sciences. The next step in my career as the very young head of the Center for New Institutional Social Sciences at Washinton University in St. Louis was prompted by the same goal. The group of scientists at the center, at the time, included, Avner Greif of Stanford, John Nye of George Mason and Nobel Laureates Douglass North and Elinor Ostrom. Everyone was looking for the same thing: rigor in theorizing in the social sciences. Unfortunately the rigor remained but the connection to social sciences has vanished until the social sciences began to abandon this method altogether.

The purpose of this workshop is to get back to the basics we were trained on, namely, to pick interesting questions in the social sciences and explore or look to understand them using game theoretical tools. We are not mathematicians, nor were meant to be. Whoever wants to be one may go to the departments of mathematics wherever s/he may find them. We are social scientists and we are interested in social science issues. Game theory is supposed to be a tool or a mean to explore those issues and not a subfield in applied mathematics as it should be, and is, in departments of mathematics.

Therefore in this short workshop we will explain the primitives of game theory and spend most of our time explaining why it makes sense to use them in the social sciences and not delve into deep math. Any game

theoretical model can be greatly improved upon with hard work and modern computer and AI tools. But the propose of it all is to explain intriguing social phenomena and this is what we will focus on in this workshop, using four seminal contributions of game theory to the Social Sciences: The General Equilibrium and the market Game, Bargaining Theory, Spatial Theory of Electoral Competition and Participating games.

Structure of the workshop

This is a two-day workshop and is structured accordingly. Game theory as a subfield in both mathematics, economics and social sciences more generally, is made of two different methodologies that differ in significant ways: Cooperative Game Theory and Non-Cooperative Game Theory. These two very different methodologies have been fighting each other in the 1990s to the detriment of both, but few know the generic differences between them and many confuse concepts that belong to one to belong to the other and vice versa. Splitting the workshop to dedicate a day for each and clarifying the differences will be one objective of the workshop.

Each day will include five short sessions of one hour each. Three sessions before lunch and two after lunch. The first session of each day will be dedicated to the general theory and application of the respective game theoretic approach. The second session will be dedicated to learning the basic primitive concepts so as to have an understanding of those concepts and be able to use them. The third session will be dedicated to the understanding of the usefulness of the tools learned in the second. The last two sessions will be dedicated to two useful, relatively well known application of the theory.

The reading materials will be handed to students ahead of time and will not be extensive. There is no need to have advanced knowledge or any particular proficiency in math, to enjoy the workshop. All that you will need will be explained in class.

Required Book:

Doron, Gideon and Itai Sened: Political bargaining: theory, practice and process, ISBN: 0761952519 pp. V-XII and 1-72. We will cover about 30 pages each every day.

For the application of Cooperative Game Theory Day One:

Ariel Rubinstein and Asher Wolinsky. 1985. Equilibrium in a Market with Sequential Bargaining, *Econometrica*, Vol. 53, No. 5 1133-1150.

Gianneti Daniela Itai Sened and Karen Umansky. 2024. "The Entry of the M5S and the Reshaping of Party Politics in Italy (2008-2018)" *Government and Opposition* 59(2) 1-18.

For the application of Non-Cooperative Game Theory Day Two:

Ariel Rubinstein. 1982. Perfect Equilibrium in a Bargaining Model, *Econometrica* 50(1), 97–109.

Ainsworth Scott H. and Itai Sened. 1993: "The Role of Lobbyists: Entrepreneurs with Two Audiences," *American Journal of Political Science*, Vol. 37, No. 3: 834-866.

Assignment:

A five-page afterthought about the course or about game theory more generally

Enjoy !!!

Workshop Schedule and Readings

Day 1: Cooperative Game Theory

First Hour: Introduction to Rational Choice Theory

Doron, G. and I. Sened. 2001. *Political Bargaining: Theory, Practice and Process* London: Sage Publications. Introduction + Chapter 1: 1.1, 1.2,

Second Hour: Cooperative Game Theory: Learning the Main Concepts

Doron, G. and I. Sened. 2001. *Political Bargaining: Theory, Practice and Process* London: Sage Publications. Chapter 1: 1.3

Third Hour: Cooperative Game Theory as an Analytical Tool:

Doron, G. and I. Sened. 2001. *Political Bargaining: Theory, Practice and Process* London: Sage Publications. Chapter 2: 2.1, 2.2, 2.3

Fourth Hour: Cooperative Game Theory in Economics: The Market Game

Ariel Rubinstein and Asher Wolinsky. 1985. Equilibrium in a Market with Sequential Bargaining *Econometrica*, Vol. 53, No. 5 1133-1150.

Fifth Hour: Cooperative Game Theory in Political Science: Spatial Theory of Electoral Competition

Gianneti Daniela Itai Sened and Karen Umansky. 2024. "The Entry of the M5S and the Reshaping of Party Politics in Italy (2008-2018)" *Government and Opposition* 59(2) 1-18.

Day 2: Non-Cooperative Game Theory

First Hour: Introduction to Non-Cooperative Game Theory

Doron, G. and I. Sened. 2001. *Political Bargaining: Theory, Practice and Process* London: Sage Publications. Introduction + Chapter 1: 1.4

Second Hour: Non-Cooperative Game Theory: Learning the Main Concepts

Doron, G. and I. Sened. 2001. *Political Bargaining: Theory, Practice and Process* London: Sage Publications. Chapter 1: 1.4 continues

Third Hour: Non-Cooperative Game Theory as an Analytical Tool: Different Games in Use

Doron, G. and I. Sened. 2001. *Political Bargaining: Theory, Practice and Process* London: Sage Publications. Chapter 2: 2.4

Fourth Hour: Non-Cooperative Game Theory in Economics: Rubinstein's Bargaining Game

Ariel Rubinstein. 1982. Perfect Equilibrium in a Bargaining Model, *Econometrica* 50(1): 97-109.

Fifth Hour: Non-Cooperative Game Theory in Political Science: The Lobbying Game

Ainsworth Scott H. and Itai Sened. 1993. "The Role of Lobbyists: Entrepreneurs with Two Audiences," *American Journal of Political Science*, Vol. 37, No. 3: 834-866.

Lecturer Bio



Prof. Itai Sened, Dean Emeritus
Faculty of Social Sciences
Tel Aviv University, Tel Aviv, Israel.
E-mail: sened@tauex.tau.ac.il

Itai Sened received his Ph.D. from the University of Rochester. Tenured at Tel Aviv University, in 1995, he moved to St. Louis to become the director of the Center for New Institutional Social Sciences (CNISS) at Washington University in St. Louis, established by Professor Douglass C. North, Nobel Laureate in the Economic Sciences, 1993. Sened served as Chair of the Department of Political Science at Washington University between 2004-7. Under his leadership the department moved up to be ranked amongst the top 15 Departments of Political Science in the U.S. In 2014 he moved back to Tel Aviv University to Chair the Department of Public Policy. In 2017 he founded of the TAU School of Social and Policy Studies. In 2020 he was elected Dean of the Gershon H. Gordon Faculty of Social Sciences. A tenure he held until October of 2024. In 2024 he resumed his University at large Professor position in charge of five interdisciplinary research centers: BMI, Archimedes, Barak Leadership Center, the Centre for the Study of the Future of Russia and the International Graduate School of Social Sciences. All five research entities support master and PhD programs and dedicate human and financial resources to research the current crises of international, national and local government institutions.

His first book, *The Political Institution of Private Property*, was published by Cambridge University Press in 1997. His second book, *Political Bargaining: Theory, Practice and Process*, co-authored with Gideon Doron, was published by Sage Publication in 2001. He published numerous articles in all of the top refereed journals in Political Science including, *The American Political Science Review*, *The American Journal of Political Science*, *The Journal of Politics*, *The British journal of Political Science*, *the European Journal for Political Research*, *the Journal of Theoretical Politics* and many others. He is the co-editor, with Jack Knight, of *Explaining Social Institutions*, University of Michigan Press (1995). In 2006 he co-authored with Norman Schofield: *Multiparty Democracy*, by Cambridge University Press. In 2014 he co-edited with Sebastian Galiani: *Economic Institutions, Rights, Growth, and Sustainability: The Legacy of Professor Douglass C. North*, by Cambridge University Press. His most recent book on the crisis of west European Democracies is due to appear in 2025 by Lexington Press. He is often called to lecture to diverse audiences about a range of topics in Politics, Political Economy, and Public Policy. He is currently engaged in research on the prospects of social policy in OECD countries, the prospects of renewable energy and the prospects of local government to remedy the crisis in international and national governance structures. An unrelated research focuses on the role of narratives in inciting and calming international conflicts.