

THEORY AT NORTHWESTERN

Northwestern has a history as a breeding ground for many of the important advances in modern microeconomic theory. That tradition continues today. Indeed, for Ph.D. applicants interested in economic theory, [Northwestern University](#) provides a uniquely stimulating learning and research environment, with features unmatched elsewhere. A key element is the seamless integration of the [Economics department](#) and [Kellogg School](#), which gives Northwestern's theory community more theory faculty, more theory courses, more theory visitors, and more theory seminars than anywhere else in the world.

Theory in the Economics Department and the Kellogg School

The Economics Department and the Kellogg School are home to a remarkably large number of theory faculty. The Economics Department alone currently has more than ten faculty who specialize in theory; the [MEDS](#) (Managerial Economics and Decision Sciences), [M&S](#) (Management and Strategy), and [Finance](#) Departments in Kellogg together have more than forty more.

Magnifying the effect of these large numbers, the Economics Department and Kellogg School are located in the same building. As a result, *the theory community at Northwestern is truly one community in a manner that is true nowhere else*. Theory students in the Economics Department and Kellogg School regularly take courses together. The Economics Department and Kellogg School run the weekly theory seminars jointly, and jointly fund visitors and conferences. Cross-advising is the norm. Indeed, insofar as research and teaching is concerned there is a seamless connection between the Economics Department and the Kellogg School.

This unique community is also complemented by other strengths at Northwestern. Northwestern is very strong in other related fields, including econometrics, industrial organization, macroeconomics, and political economy. Another resource for theory students at Northwestern is offered by the faculty in the [Department of Electrical Engineering and Computer Science \(EECS\)](#), who participate in many of our theory activities and run additional conferences and seminars.

The theory faculty at Northwestern include four members of the American Academy of Arts and Sciences and at least eight fellows of the Econometric Society. Northwestern theory faculty are *currently* (i.e., in summer 2010) members of the editorial boards of a large number of journals, including all the leading theory journals, several of the leading general interest journals, and many other (e.g., applied theory) journals. Specifically, there are current editors or coeditors of the *Review of Economic Studies*, *Theoretical Economics*, *Games and Economic Behavior*, *American Economic Journal: Microeconomics*, *BE Press Journals: Economic Theory*, *The International Journal of Game Theory*, *The Quarterly Journal of Political Science*, and the *Journal of Economics and Management Strategy*. There is also a previous editor of *Econometrica* and a former coeditor of the *Rand Journal*. This is in addition to the theory faculty serving as

associate editors and board members at numerous journals; for example there are more theory associate editors on the board of *Econometrica* from Northwestern than from any other university.

Faculty research interests are correspondingly broad, covering a wide range of topics, including decision theory, foundations of game theory, mechanism design, repeated games, reputation, evolution, contract theory, behavioral economics, continuous time modeling, communication, bounded rationality, and more. Currently, the Economics Department and Kellogg School theory faculty includes the following individuals, whose research interests are also indicated:¹

Economics Department:

[Eddie Dekel](#) (Decision theory, Game theory esp. foundations of game theory, Voting)

[Jeff Ely](#) (Game theory, Mechanism design, Evolution, Behavioral economics)

[Wojciech Olszewski](#) (Information and communication in economics, Repeated games, Decision theory, Mechanism design, Reputation.)

[Alessandro Pavan](#) (Mechanism design esp. dynamic, Global games, Coordination, Information economics)

[Bill Rogerson](#) (IO Theory, Mechanism design esp. Principal-agent, Procurement)

[Todd Sarver](#) (Decision theory)

[Ron Siegel](#) (Contests, Auctions, Mechanism design)

[Marciano Siniscalchi](#) (Foundations of game theory, Decision theory)

[Bruno Strulovici](#) (Microeconomic theory with applications to political and financial economics)

[Mike Whinston](#) (Game theory, IO theory, Information economics.)

[Asher Wolinsky](#) (Game theory, IO theory, Information economics.)

MEDS:²

[Nabil Al-Najjar](#) (Decision theory, Learning, Reputation)

[Alp Atakan](#) (Matching, Bargaining, Search, Repeated games)

[David Austen-Smith](#) (Political economy, Social choice, Cheap talk and signaling)

[Sandeep Baliga](#) (Mechanism design, Contract theory, International relations)

[Luciano de Castro](#) (Auction theory, Decision Theory)

¹ EECS faculty include Lance Fortnow, Jason Hartline, Nicole Immorlica, and Ming-Yang Kao who focus on issues that include algorithmic game theory, algorithmic mechanism design, social networks.

² The MEDS department also has a subgroup in operations research (Allon, Ata, Bassamboo, Chopra, Deo, Deshmukh, Gurvich, Van Mieghem) that combines queuing theory and stochastic processes with economic theory to examine the behavior of manufacturing and service systems.

[Daniel Diermeier](#) (Political economy)
[Wioletta Dziuda](#) (Communication in games)
[Georgy Egorov](#), (Political economy, Organizational economics)
[Mehmet Ekmekci](#) (Repeated games, Reputation, Bargaining)
[Tim Feddersen](#) (Political economy, Voting, Behavioral economics)
[Ronen Gradwohl](#) (Game Theory, Mechanism Design, Computer Science)
[Bard Harstad](#) (Political economy)
[Florian Herold](#) (Evolutionary game theory, Contracts, Social networks)
[Tai-Wei Hu](#) (Complexity, Decision theory, Monetary economics)
[Ehud Kalai](#), (Game theory, Learning)
[Peter Klibanoff](#) (Decision theory)
[Christoph Kuzmics](#) (Evolutionary game theory)
[Antoine Loeper](#) (Political economy, Social choice)
[Brian Rogers](#) (Social networks, Learning)
[Yuval Salant](#) (Behavioral economics, Bounded rationality, and Decision theory)
[Alvaro Sandroni](#) (Behavioral Economics, Economic Theory)
[Mark Satterthwaite](#) (Healthcare Management, Strategy, Voting Systems)
[James Schummer](#) (Game Theory, Mechanism Design)
[Kyoungwon Seo](#) (Decision theory, Game theory)
[Eran Shmaya](#) (Game theory, Probability and Information theory)
[Jakub Steiner](#) (Behavioral Economics, Game Theory, Information Economics)
[Rakesh Vohra](#) (Mechanism design, Learning)
[Robert Weber](#) (Auction theory, Bayesian games)
[Johnathan Weinstein](#) (Game theory, Higher-order uncertainty)

M&S:

[David Besanko](#) (Industrial Economics, Public Policy, Regulation)
[Yuk-fai Fong](#) (Behavioral Economics, Industrial Organization)
[Jin Li](#) (Contract Theory, Economics of Organizations, Information Economics)
[Marco Ottaviani](#) (Information aggregation in markets and organizations)
[Jeroen Swinkels](#) (Contract Theory, Economics of Organizations, Game Theory, Information Economics)

Finance:³

[Snehal Banerjee](#) (Behavioral finance)
[Brett Green](#) (Corporate finance, Information economics)
[Mike Fishman](#) (Corporate finance, Information economics)

³ This list focuses on micro-finance; there is an excellent set of macro-finance faculty as well.

[Artur Raviv](#) (Corporate finance, Information economics)

[Dimitris Papanikolaou](#), [Costis Skiadas](#) (Asset pricing)

[Kathleen Haggerty](#) (Market microstructure)

[Jonathan Parker](#) (Macro but with interests in Psychology and Behavioral finance)

The Learning Environment

The size and strength of the Northwestern theory community has many advantages for students. Thanks to the large and diverse set of theory faculty, we are able to offer an exceptionally broad range of advanced PhD courses. This breadth of course topics provides an important building block to help students identify active areas of research that interest them and possible thesis topics.

A student can typically take more than three year-long sequences of theory courses while at Northwestern, a scope and depth of learning unmatched by any other Ph.D. program. This depth and breadth of exposure increases the likelihood students find thesis topics that truly excite them. And, with this breadth of training, Northwestern theory students are uniquely well-prepared for the years that follow, when they are themselves faculty.

In recent years the Economics Department has offered 7-8 advanced quarter courses in theory. For example, in 2010-11 it offered the following courses:

- Foundations in Decision and Game theory (Dekel and Siniscalchi),
- Information Economics (Wolinsky),
- Mechanism Design-1 (Siegel),
- Mechanism Design-2 & Coordination under incomplete information (Pavan),
- Topics in Game theory and information (Olszewski),
- Behavioral economics (Ely),
- Optimal control for economics (Strulovici).

For the period 2009-2010 the [MEDS](#) and M&S departments offered the following advanced courses:

- Decision theory (Seo),
- Repeated games and Reputation (Ekmekci),
- Dynamic models (Atakan)
- Mechanism design from a linear programming perspective (Vohra)
- Formal Political theory (Harstad)
- Social choice and voting (Loeper)
- Topics in Game Theory (Sandroni)
- Economics of organizations (Li).

In addition, there are courses in algorithmic game theory and mechanism design offered by the [EECS group](#), and courses of interest are also offered by the [Finance Department](#).

The large number of theory faculty and the diversity of their interests is also a big advantage for theory students at the dissertation-writing stage. It means that whatever topic you are interested in, there are likely to be faculty who are experts in the area, and just as excited about it as you are. At Northwestern, theory students don't find themselves limited in their dissertation topics because of the more limited interests that often go along with having a small number of theory faculty, as can happen elsewhere.

Of course, a good graduate program is not merely one that offers the largest number of classes, or has the most faculty. Equally important is the attitude that the faculty bring to courses and advising. Northwestern is well known for the attention and importance that the faculty put on teaching and training Ph.D. students. Northwestern's theory faculty are devoted to maintaining a high-quality program and to advising Ph.D. students, and this shows in the quality of instruction, the accessibility of faculty, and the placement record of Northwestern theory students, a record that we are very proud of. Placement for theory students of the Northwestern Economics department since 1995 has been at the following institutions:

- Bates White, Washington DC
- Bocconi University, Italy
- Boston University
- Bowdoin College
- Harvard Business School
- Harvard University
- Keio University, Japan
- McKinsey and Company, Minneapolis
- National University of Singapore
- Ohio State University
- Princeton University (2)
- Rice University (2)
- Toulouse School of Economics
- University of British Columbia (2)
- University of California, Los Angeles
- University of Chicago
- University of Minnesota
- University of Oxford (post-doc)
- University of Rochester
- University of Southampton, United Kingdom
- University of Southern Florida
- University of Texas, Austin
- University of Toronto
- University of Western Ontario
- Yale University

Seminars

There are *two* main weekly theory seminars. The [first](#) features faculty from other institutions presenting their work ([click here](#) and scroll to the bottom for a list of previous speakers), while the [second](#) is a weekly “brown-bag lunch” seminar at which Northwestern faculty present their current research. Not surprisingly, these seminars are well-attended (the number of faculty in attendance is often greater than twenty) and very active. In addition to these seminars, students present their work in progress at a separate student theory lunch.

Moreover, many seminars in related applied fields regularly include theory talks, including the industrial organization seminar, the political economy seminar, the finance seminar, the strategy seminar, and a theory seminar run by [EECS](#).

Visitors

In addition to the weekly seminar speakers, many theory faculty from other institutions visit Northwestern for longer periods of time. These include visitors invited by Kellogg (in particular MEDS), the Math Center, and the Center for Economic Theory (CET). Many of these also teach advanced mini-courses while they visit (see <http://www.wcas.northwestern.edu/cet/mini-courses-archive.html> for some examples). In recent years theory students have also benefited from Nemmers Prize visitors, such as Ariel Rubinstein, Paul Milgrom, and Lars Hansen. Nemmers Prize visitors spend a quarter in residence, and offer another advanced topics course while visiting (beyond those listed above).

For example, 2009-10 visitors included (this is a partial list): [Benny Moldovanu*](#), [Elchanan Ben Porath](#), [Navin Kartik](#), [Moritz Meyer-ter-Vehn](#), [John Quah](#), [Philipp Kircher](#), [Bruno Julien](#), [Ron Harstad](#), [Fabrizio Germano](#), [Sven de Vries](#), [Tilman Börgers*](#), [Julio González Diaz](#), [Alex Gershkov](#), [Madhav Chandrasekher](#), [François Maniquet*](#), [Eran Hanany*](#), [Phil Reny*](#), [Sergiu Hart](#), and [Paul Milgrom*](#). All of these visitors came for at least a week, and those listed with a * came for at least a quarter.

There are also many pre-doctoral visitors (listed on <http://www.kellogg.northwestern.edu/research/math/centerinfo/visitors.htm>). These are Ph.D. students from other programs who have not yet completed their Ph.D., and who further enrich the theory environment at Northwestern.

Conferences

The Economics Department and Kellogg School also organize numerous conferences, more than at most leading departments. (Some recent conferences are listed here: <http://www.kellogg.northwestern.edu/research/math/centerinfo/conferences.htm>.) For example, Northwestern hosted the [Third World Congress of the Game Theory Society](#) in August 2008 and will host the newly introduced annual [Transatlantic Theory Workshop](#).

[The Center for the Study of Industrial Organization \(CSIO\)](http://www.wcas.northwestern.edu/csio/seminars.html) also holds annual conferences, one with faculty from Institut D'Economie Industrielle of the University of Toulouse and one that has been sponsored jointly with Duke and the University of Texas at Austin, both of which have a strong theory component (information on both conferences is available at <http://www.wcas.northwestern.edu/csio/seminars.html>).

Financial Support

In addition to the regular funding offered by the Economics Department and Kellogg School, the [CET](#) supports Economics Department students with research assistant positions (one to three students obtain such support each academic quarter), in addition to the research assistant positions provided by faculty. CET has also provided funds for students to participate in conferences and to obtain professional editors who improve their writing. Other forms of CET research support for students are also available.

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