University of Mannheim  
Chair of Political Economy  
Prof. Dr. Thomas J. Bräuninger

Game Theory II  
Syllabus Fall 2017

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Course Description

This course is a continuation of the intro into Game Theory and covers advanced topics in game theory with a particular emphasis on the link of theories, methods and empirics. At the core, we discuss techniques used to analyze settings of imperfect information and much emphasis will be put on how to set up, evaluate and interpret these models. Topics covered include normal form games with incomplete information and Bayesian equilibrium, stochastic games and Markov-perfect equilibrium, signaling games and cheap talk, information transmission, agency models, network models, comparative statics, monotone comparative statics, fix point problems and structural estimation. Emphasis will be placed on prominent applications of those concepts in political science, in both comparative and international politics.

The course outline has been designed by myself and Tilko Swalve (who will be the instructor in two or so sessions). Yet, as this is a seminar, the course allows students to pursue areas of individual interest in more depth, and therefore the course content is to some extent determined based on the interests of students.

Organization

I will teach from lecture notes most of the times but I would like to encourage students to take the chance and prepare materials or papers on the syllabus (or related papers) in a way that they can present and explain what’s going on there to other students. In such a session I would possibly do the intro, talk about key ideas and present one or two models. We would then have a student presentation of a second (or third) paper. It’s up to you how you do it (focusing on intuition or maths, using slides or the blackboard, etc). As we are a big crowd this will not work out if anyone presents. So volunteers are very much welcomed! Think about it and let me know ASAP.

We hold a mini workshop in the final two session. Each student presents an idea for or a draft of a model for the problem she or he is currently working on. There is no expectation to do super fancy things. Quite to the contrary, we should strive for the simplest model that captures your intuition. If we allow for 30 min. for each presentation, we most likely have to start earlier on these days. Just to let you know.
For the term paper, a five or so page outline will do it.

**Resources**

We will make most of the readings available online. However, you may want to obtain a copy of one of the following books:


**Schedule**

| Sep 05 | Introduction: Some Basic Concepts – Reconsidered and Extended |
| Sep 12 | Useful Math Tools and Comparative Statics |
| Sep 19 | Spatial Model I: Convergence, Divergence and the Citizen-Candidate Model |
| Sep 26 | Spatial Model II: cont’d & Valence Models |
| Oct 03 | Public Holidays |
| Oct 10 | Agency Model I: Moral Hazard & Adverse Selection |
| Oct 17 | Agency Model II Career Concerns & Pandering |
| Oct 24 | Media Bias |
| Oct 31 | Public Holidays |
| Nov 07 | Structural Estimation |
| Nov 14 | Networks |
| Nov 21 | Markov Perfect Equilibrium OR Information Aggregation in Committees (TBD) |
| Nov 28 | Modeling Workshop I |
| Dec 05 | Modeling Workshop II |

There are other topics that alternatively could be covered in section 3: quantal response equilibrium, global games, or mechanism design

Prepare all readings with a '*'. The rest are recommended texts.

**Sep 5, Introduction: Some Basic Concepts – Reconsidered and Extended**

In this introductory session, we review some basic concepts, e.g. best response correspondences, mixed strategies, and finding equilibria in continuous strategy spaces. We consider finding equilibria as a fixed point problem, look at some fix point theorems and prove Nash’s existence theorem.


Sep 12, Useful Math Tools and Comparative Statics

We introduce some mathematical tools and concepts that will turn out to be useful for determining and study the behavior of equilibria: implicit differentiation, implicit function theorem, envelope theorem, comparative statics, single-crossing property, monotone comparative statics, monotone likelihood ratio property, maximum theorem.


Sep 19, Spatial Models I: Convergence, Divergence, and Citizen-Candidate Model

We consider conditions for existence of equilibria and ‘convergence or divergence’ of positions in the spatial model of candidate or party competition: classical Downs-Hotelling model, extension to multiple dimensions, multiparty competition, and policy-seeking candidates (Wittman-Calvert model), introduce uncertainty: probabilistic voting models (Hinich mean voter theorem), aggregate uncertainty (Calvert model, Roemer model), and a multiparty multi-dimensional probabilistic model (Lin et al. model). We also look at the citizen-candidate model in which voter do not ‘affect but select policies’.


Historic


Sep 26, Spatial Models II: cont’d & Valence

How do voters vote? While one strand of literature has focused on the importance of policy positions, a second strand has pointed to the importance of non-policy, valence attributes of candidates like competence, integrity, incumbency or experience. Connecting these literatures, valence models seek to understand how voters vote and how valence affects candidate/party competition when valence is fixed (that is exogenous) or agents can invest in costly valence (that is valence is endogenous).


Multi-candidate / multi-party


Empirical

Oct 10, Agency Model I: Moral Hazard and Adverse Selection

A central question in the economic literature on contracts concerns the relationship between principals and agents. How do contracts shape the relationship between principals and agents? The answer has direct relevance for political agency that is the relationship between electors and politicians under democratic rule. We consider seminal agency problems, moral hazard, adverse selection, and information asymmetry to study accountability of those elected. In a second session, we look at more specific issues focusing on pandering and career concern models.


Historic


Oct 17, Agency Model II: Career Concerns and Pandering

Pandering


Career Concerns


Historic


Oct 24, Media Bias

Accountability heavily relies on voter information about politicians, information that to a large extent is provided by the media. Is there ideological or partisan media bias? Many would agree albeit the question of whether the bias is conservative or liberal is object of considerable debate. What about competition in media markets? Does it provide more information and thus reduce media slant, or does it result in market segregation and increase bias?


Empirical


**Nov 07, Structural Estimation**


**Historic**


**Nov 14, Networks**


**Nov 21, Markov Perfect Equilibrium OR Information Aggregation in Committees (TBA)**

Markov Perfect Equilibrium


Information Aggregation in Committees


Nov 28, Modeling Workshop I (starts earlier)

Dec 5, Modeling Workshop II (starts earlier)