Dr. Hannes Rau, Chair of Political Economy

Game Theory and Behavioral Economics
(Bachelor + Master Seminar)

I. Topic Description

Game theory's strength lies in its mathematical precision and broad applicability. However, its predictions often diverge from real-world behavior in specific strategic situations. For example, in Prisoners' Dilemma and in Public Goods Games observed cooperation levels are much higher than predicted. Similarly, in Dictator, Ultimatum and Bargaining Games, more equal allocations are observed than standard models suggest. Also, in Dominance Solvable and Beauty Contest Games there is a big discrepancy of outcomes compared to the equilibrium prediction.

Where game theory's predictions fall short, behavioral economics steps in. By incorporating psychological insights and experimental evidence from lab and field experiments, it provides a deeper understanding of how people actually behave in strategic situations. Combining these two fields allows for the creation of models that not only describe, but also predict behavior more accurately.

Coming back to the examples from before, some behavioral models add so called "social preferences" into the utility function (preferences about the payoffs of others or the way of interaction). This can explain cooperative behavior and reciprocal actions of decision makers. Other models assume only limited cognitive abilities of agents and relax the assumption of rationality and common knowledge of rationality. This also can explain why in some cases agents fail to play Nash equilibrium outcomes, in particular if there are many steps of iterations necessary.

In this seminar, you will explore prominent strategic situations through the perspective of both game theory and behavioral economics. The goal is to understand how behavioral insights explain deviations from standard predictions and how these insights complement game theory to create more realistic models of human decision-making.

Participants are encouraged to work in small research groups of 2-3 people (individual projects are possible as well). Each group will be allocated one broader topic from the list below. Groups are expected to first conduct a basic literature review of their respective topic.

In a second step, participants **develop an own research question** within the scope of their topic. **In addition, a design of an experimental study being able to test this RQ should be proposed.** This must go beyond the results of preexisting work. (*Note:* Carrying out the experiment itself will not be part of the seminar.)

II. Organizational and Procedural Details

Application will be possible via the centralized platform (wiwi Portal) **until October 12, 2025**. Please shortly describe your prior knowledge in the areas of game theory and behavioral economics as well as your motivation for participating in the seminar (3-4 sentences). Also add your current transcript of records.

The seminar starts with an **introductory meeting on October 29, 2025 at 2 pm** (KD2 Lab, "Teamraum A+B", 1st floor in building 01.85). The meeting is supposed to last for approx. 1.5h.

In the weeks after the introductory meeting, students will collaborate within their research group and receive feedback/support by the seminar instructors. Groups are expected to present their preliminary findings and research ideas during a **block seminar on January 19, 2026**. Each presentation should last for ca. 20 minutes, followed by a Q&A and general discussion part .

Full attendance in all meetings is required for successful participation in the seminar.

At the end of the semester, each group has to hand in a seminar paper (approx. 10 – 12 pages) summarizing the main findings of the topic and outlining their research ideas.

Prior attendance of the courses "Einführung in die Spieltheorie" and “Economics and Behavior” is helpful, but not required. For any further questions or clarifications, please reach out to Dr. Hannes Rau (hannes.rau@kit.edu).

III. List of Topics

- **Dictator Games and Prosocial Behavior**
- **Ultimatum Games and Bargaining**
- **Social Dilemma Games**
- **Interactions Involving Trust**
- **Coordination and Guessing Games**

Some references related to the above listed topics will be provided as source of inspiration after the kickoff meeting.

IV. Additional Reading

Camerer, C. F., & Fehr, E. (2006). When does "economic man" dominate social behavior? *Science*, 311(5757), 47-52.
Charness, G., & Fehr, E. (2015). From the lab to the real world. *Science*, 350(6260), 512-513.
Roth, A. E., & Kagel, J. H. (1995). The handbook of experimental economics (Vol. 1). Princeton, NJ: Princeton university press.