

# Bounded Rationality – Theory and Experiments (Bachelor + Master Seminar)

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## I. TOPIC DESCRIPTION

The term “bounded rationality” goes back to the social scientist and Nobel Prize winner Herbert Simon. It challenges the assumption of perfectly rational agents as often used in the neoclassical model of the “*homo economicus*”. Instead, decision makers are assumed to have limited information and computation capabilities, to make mistakes and to have certain judgement/decision biases. As a consequence, they frequently fail to choose their very best/“utility maximizing” option.

In contrast to the normative theory of “Expected Utility Theory” (EUT), models and theories of bounded rationality usually are more descriptive. One of the most prominent examples is “Prospect Theory” (PT), developed by the psychologists Kahneman & Tversky (1979). In this framework, decision makers are assumed to exhibit certain biases in their judgements and perceptions, such as a non-linear weighting of probabilities and a different experience of gains and losses (“losses loom larger than gains”). Furthermore, decision makers are assumed to evaluate options relative to a certain “reference point” instead of their final wealth consequences. As shown in a series of small experiments these patterns sometimes lead to certain biases and inconsistencies according to the neoclassical theory.

However, most behavioral economists would not judge this kind of behavior as “bad” or “irrational” per se. In some cases, the underlying mechanisms may even be superior from an evolutionary perspective (given that for many species avoiding losses was essential for survival and searching for the very best option can be very time and effort consuming). Arguing in this direction, psychologists like G. Gigerenzer conducted a lot of research about agents employing simple decision rules. These so called “heuristics” often lead to a decent but not the very best outcome.

The goal of the seminar is to introduce students to the basic concepts and theories dealing with “bounded rationality”. As main part, participants are supposed to develop their own research question and a design for an experimental study to further explore a relevant aspect within the seminar’s topic.

## II. ORGANIZATIONAL AND PROCEDURAL DETAILS

In the seminar no topics will be handed out. Instead, students will use their own creative abilities to think of an interesting research question in the broad thematic field of

bounded rationality. Based on this, you will design an experimental design for a lab or a field study, which is suited to test your hypothesis/answer your research question. (*Note: Carrying out the experiment itself is not part of the seminar.*) Students will work in groups of up to four, depending on the total number of participants. If the process of group formation is unsuccessful, participants will be assigned to a group.

The seminar starts with an **introductory (online) meeting on Tue, 19<sup>th</sup> April 2022 at 2pm**. The meeting is supposed to last for approx. 1-1,5h. The participation link will be sent to the final list of participants at a later point in time. Ideas for experiments or field studies will be presented in blocked events in the end of May 2022 (if possible in-person). Each presentation should last for max. 20 minutes. Full attendance in all meetings is required for successful participation in the seminar. Seminar papers of 8–10 pages, as well as one (Bachelor) individual abstract with 75-100 words (Master: two individual abstracts with 75-100 words and 150-200 words) are to be handed in by the end of the semester.

Please note that we will ask you for a brief motivation and - if possible - a short description of the topic you are interested in, in order to ensure a well-balanced variety in the seminar. Prior attendance of the courses “Behavioral Economics” and/or “Auction and Mechanism Design” is recommended, but not required. For further questions, please contact Dr. Hannes Rau ([hannes.rau@kit.edu](mailto:hannes.rau@kit.edu)).

### III. SOURCES OF INSPIRATION

- Barberis, N. (2013). Thirty years of prospect theory in economics: A review and assessment. *Journal of Economic Perspectives*, 27(1), 173-96.
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- Charness, G., & Fehr, E. (2015). From the lab to the real world. *Science*, 350(6260), 512-513.
- Falk, A., & Szech, N. (2013). Morals and markets. *Science*, 340(6133), 707-711.
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