



404.613 Environmental Decision Making – Syllabus

Thomas Brudermann, as of October 2019.

Content: This course addresses decision making in an environmental context. The course will provide an introduction to current topics in environmental psychology and critical discussions of relevant insights from behavioral economics, economic psychology, neuroeconomics and game theory. No previous knowledge is required.

Objective: Participants will acquire a basic understanding of human decision making (decision making of consumers, households and organizations) and apply it to environmental issues. By this means participants will be able to add a psychological/behavioral perspective to the analysis of (un)sustainable / environmentally significant behaviors.

The course has an interactive nature; there will be lectures by the instructor, take-home assignments (mainly study of literature), student presentations, group work and discussions, as well as practical exercises.

The assessment is based on active participation in class (continuous assessment, 40-50%) and a written exam at the end of the semester (max. 100 minutes, mainly open format questions, 50-60%). Both parts have to be positively assessed for a positive overall assessment.

Recommended literature includes:

- Richard Thaler & Cass Sunstein (2008). *Nudge: Improving Decisions About Health, Wealth and Happiness*. New York: Penguin Books.
- Gerd Gigerenzer (2007). *Gut Feelings: The Intelligence of the Unconscious*. New York: Viking Penguin.
- Kahneman, Daniel (2011). *Thinking, Fast and Slow*. New York: Penguin Books.
- Gerd Gigerenzer (2014) *Risk Savvy: How To Make Good Decisions*. London: Penguin Books.
- Frank Beckenbach & Walter Kahlenborn (2016). *New Perspectives for Environmental Policies Through Behavioural Economics*.

Literature specifically relevant for the topical sessions is mentioned in the sections below. Please note that the order of sessions might vary in some semesters.



Session 1: Course Organization and Introduction

This session provides an introduction to decision making, and motivation for the topic of environmental decision making.

- Impact of decisions on the environment
- Rational decision making models and their implications
- Cognitive capacity of human decision makers

The basic literature for the course will be introduced.

Session 2: Decision making – Insights from Behavioral Economics

This session introduces students to the field of behavioral economics.

- Concepts from behavioral economics: Framing, loss aversion, risk aversion, mental accounting, temporal discounting, sunk cost effect, decision biases, bounded rationality, behavioral decision theory.
- How can insights from behavioral economics be used in order to promote pro-environmental behaviors / more sustainable life styles?

(Camerer, Loewenstein, & Rabin, 2004; Gowdy, 2008; Lambert, 2006; OECD, 2017; Resnick, 2018)

Session 3: Decision Making Heuristics

This session addresses the topic of heuristic decision making:

- What are a heuristics – examples from different fields of research (e.g. computer science and artificial intelligence)
- Examples for human decision heuristics
- Advantages and disadvantages of heuristics
- Heuristic decision making vs rational decision making

(Gigerenzer & Gaissmaier, 2011)



Session 4: Social dilemmas and human cooperation

This session addresses interconnections of the fields of game theory and behavioral/experimental economics. Topics to be discussed are:

- What are social dilemmas?
- Real-world examples of social dilemmas
- Game-theoretic structure of different dilemmas (e.g. public good dilemma)
- Common behaviors in social dilemmas
- Role of sanctioning mechanisms
- Motives for engaging in sanctioning others (in multi-person setting)
- Reciprocal fairness and inequity aversion manifest in lab experiments and in the real world

(Axelrod, 1984; Cohn, Maréchal, Tannenbaum, & Zünd, 2019; Fehr & Fischbacher, 2004; Herrmann, Thöni, & Gächter, 2008; Levitt & List, 2007; van den Assem, van Dolder, & Thaler, 2011)

Session 5: Social norms & social influence

The behaviors, attitudes and opinions of other people heavily impact individual decisions. In this session we learn about:

- Descriptive and injunctive norms
- Asch effect
- Formulation of norm-based persuasive appeals
- Role of social norms in environmentally significant behaviors
- Norms communicated by the shape of the environment

(Brudermann, Bartel, Fenzl, & Seebauer, 2015; Goldstein, Cialdini, & Griskevicius, 2008; Keizer, Lindenberg, & Steg, 2008; Levitt, 2006; Nyborg et al., 2016; Schultz, Nolan, Cialdini, Goldstein, & Griskevicius, 2007; Thøgersen, 2008)

Session 6: Habits and social practices

This session will focus on how to overcome environmentally harmful habits and practices. We focus on two different perspectives on this matter. The first one originates from environmental psychology, here represented by the work of Graybiel, and the second one originates from sociology, here represented by the work of Elizabeth Shove. Topics thus include:

- 'Behavioral lock-ins' – breaking 'bad habits'
- Social practices
- Asymmetry between intention and impacts
- Learning environmental-friendly behavior
- Psychological perspective vs. practice theory perspective

(Arnott et al., 2014; Graybiel, 2008; Larsen, 2017; Schäfer, Jaeger-Erben, & Bamberg, 2012; Shove & Walker, 2010)

Session 7: Awareness, perception, knowledge and context



In this session, the psychology of global & local environmental problems is discussed:

- Environmental hyperopia
- Psychological phenomena which are responsible for climate-change-related problems not reaching the public
- Influence of contextual factors (e.g. local weather) on perception and awareness of environmental problems

(Clayton et al., 2015; Kahan et al., 2012; Li, Johnson, & Zaval, 2011; Ölander & Thøgersen, 2014; Sörqvist & Langeborg, 2019; Tobler, Visschers, & Siegrist, 2012; Uzzell, 2010)

Session 8: Good intentions and cognitive dissonance

In this session we discuss spillover and rebound effects as well as the concept of cognitive dissonance.

- Cognitive dissonance
- Behavioral spillovers from one domain to another
- Rebound effects?
- Behavioral economic concepts and spillover/rebounds
- "Simple, painless steps" to fight climate change and environmental problems

(Gillingham, Kotchen, Rapson, & Wagner, 2013; Lanzini & Thøgersen, 2014; Thøgersen & Crompton, 2009; Whitmarsh, 2009)

Session 9: Communicating climate change and environmental problems

This session addresses the topic climate change communication:

- Suggestions by CRED regarding climate change communication.
- Challenges and difficulties
- Examples for campaigns conforming to the suggested principles.
- Examples for campaigns violating these principles.

(Cook, 2010; Court & Frimer, 2018; Hornsey, Harris, Bain, & Fielding, 2016; Lucas, Brooks, Darnton, & Jones, 2008; Newell & Pitman, 2010; Pidgeon & Fischhoff, 2011; Ross, 2013; Shome & Marx, 2009)

Session 10: De-Marketing & Green Marketing

(1) Managing the environmental imperative recently also became a topic for marketing experts like Philip Kotler, who demands a "reinvention of marketing" within this context.

(2) Green Marketing is an increasingly popular concept for companies. We will discuss the basic principles of green marketing as well as cases where the term is misleading and even misused for profit maximization ('green washing').

(Fuentes, 2014; Kotler, 2011; Mazar & Zhong, 2010; Rettie, Burchell, & Barnham, 2014)

Session 11: Decision making in complex systems

Decisions are tricky, especially when dealing with a complex system. In this session, we will discuss challenges for decisions in complex systems, address human decision making flaws, and play the cybernetic strategy game *Ecopolicy* to practically experience challenges and solutions.

(Dorner, Nixon, & Rosen, 1990)

Specific Literature

- Arnott, B., Rehackova, L., Errington, L., Sniehatta, F. F., Roberts, J., & Araujo-Soares, V. (2014). Efficacy of behavioural interventions for transport behaviour change: systematic review, meta-analysis and intervention coding. *The International Journal of Behavioral Nutrition and Physical Activity*, *11*, 133. <https://doi.org/10.1186/s12966-014-0133-9>
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- Bruderermann, T., Bartel, G., Fenzl, T., & Seebauer, S. (2015). Eyes on social norms: A field study on an honor system for newspaper sale. *Theory and Decision*, *79*(2), 285–306. <https://doi.org/10.1007/s11238-014-9460-1>
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