

Advanced Microeconomics

Carsten Helm

Information on the course

2025/26

- Course format: 3 lectures followed by one exercise
- Schedule for lectures:
 - Every week: Tuesday 10:15 - 11:45 (A14 1-103, Hörsaal 3)
 - Every 2nd week: Wednesday 8:15 - 9:45 (A14 1-103, Hörsaal 3)
- Schedule for exercises:
 - Every 2nd week and starts on October 22:
 - Wednesday 08:15 - 09:45 (A04 2-221)
 - Wednesday 12:15 - 13:45 (V04 0-033)
 - Exercise sheets and schedule can be found in the following Stud.IP group:
 - 2.02.681a Advanced Microeconomics UE1

- Some notes on exercises
 - You can obtain a bonus point by submitting 3 solution „attempts“
 - improvement of the final grade by 0,3 grading points
 - also helps to pass the exam
 - If you fail the exam by 1-2 points, you can still pass with the bonus point
 - can be done in groups of up to 3 students
 - you do not need to have complete and correct solutions
 - but we want to see that you really tried to solve them, ie. that you tried to apply what you learned in the lecture
 - Solutions of the problem sets are presented in class by students
 - If you submit a solution “attempt” to obtain a bonus point, you are expected to be able to present this to the class
 - we usually ask for volunteers
 - For those who presented in class, only 2 submitted solutions are necessary to obtain a bonus

- Responsible for lecture: Carsten Helm
 - Email: carsten.helm@uol.de
 - Phone: (+49)-441-798-4113
 - Office hour: Tuesday 9-10 (check <https://uol.de/fiwi/team/prof-dr-carsten-helm>)
- Responsible for exercises: Daniel Rüb and Laura Schürer
- All lecture materials: Stud.IP - <https://elearning.uni-oldenburg.de/>
 - At the beginning of the term, I upload last year's lecture materials
 - lecture slides will be revised during the term and then successively replaced
 - relevant for the exam are the exercises as well as what I teach in the classes and, thus, the final version of the lecture slides.

- When designing the exam, we make sure that
 - some questions are close to the lecture slides, and
 - some questions are close to the exercises
 - questions can also be a mix of both
- Exams (**do not forget to register! Deadline is 1 week before the exam**)
 - Exam: Friday, 13 February 2026, 12:00-13:30
 - Room: A11 1-101 (Hörsaal B)
 - Retake exam: Wednesday, 11 March 2026, 14:00-15:30
 - Room: A07 0-030 (Hörsaal G)

Microeconomics and game theory

- Advanced microeconomics often analyses decision-making situations of *strategic interaction*, in which the result depends on the decisions of several interacting economic agents
 - by contrast, the focus of BA lectures in microeconomics lies on non-strategic interaction
 - most prominently, consumers maximize utility and firms profits, while taking prices and other parameters as exogenously given
- situations of strategic interaction are analysed using game theory

Important areas of application

- **Decisions** in oligopoly markets on prices, volumes, market entry, product differentiation or R&D
- **Negotiations**, e.g. in international environmental policy, on collective agreements, trade liberalization, or disarmament
- **Bidding** behavior at auctions
- **Provision of public goods** in small groups
- **Strategic behavior** in strikes, trade wars, military conflicts or other conflicts
- **Interaction** between the firms and its employees
- ...

Outline of course

- The course is organized along the different classes of games
 - starting with the easiest class

	Static games	Dynamic games
Complete information	1. Static games with complete information	2. Dynamic games with complete information
Incomplete information	3. Static games with incomplete information	4. Dynamic games with incomplete information

- We will look at several applications that correspond to the various classes of games
 - Prisoners Dilemma
 - Bargaining
 - Auctions
 - Performance pay, ...

Two core textbooks for the lecture:

- **St. Tadelis.** *Game theory: an introduction.* Princeton Univ. Press. 2013.
- **Robert Gibbons.** *A Primer in Game Theory.* FT Prentice Hall. 1992.
- Carpenter, J. and A. Robbett. *Game Theory and Behavior,* MIT Press. 2022.
- Watson, Joel. *Strategy: An Introduction to Game Theory,* 3rd ed., W.W. Norton, 2013.

Other textbooks (some of them easy to read)

- Espinola-Arredondo, Ana and Felix Muñoz-Garcia, *Game Theory: An Introduction with Step-by-Step Examples*, Palgrave Macmillan. 2023.
- Osborne, Martin J. *An Introduction to Game Theory*. Oxford Univ. Press. 2009.
- McMillan, J. *Games, Strategies & Managers*, Oxford Univ. Press, 1992.
- Dixit, Avinash and Barry Nalebuff, *Thinking Strategically*, W.W. Norton, 1993.
- Nalebuff, Barry and Adam Brandenburger, *Co-opetition*, Harper Collins 1997.
- Dutta, P. *Strategies and Games*, MIT Press, 1999.
- Binmore, K. *Fun and Games*, D.C. Health and Company, 1992.
- Abhinay Muthoo: A non-technical Introduction to Bargaining Theory (<http://privatewww.essex.ac.uk/~muthoo/simpbarg.pdf>).

A little more demanding

- Campbell, D. E.. Incentives: motivation and the economics of information. Cambridge University Press, 2018.
- Maschler, M., E. Solan, and S. Samir. Game Theory, Cambridge Univ. Press, 2nd edition, 2020.
- Mas-Colell, A. et al. Microeconomic Theory, Oxford Univ. Press, 1995.
- Fudenberg, D. and J. Tirole. Game Theory, Cambridge (Mass.): MIT Press, 1991.
- Osborne, M. and A. Rubinstein. A Course in Game Theory, Cambridge (Mass.): MIT Press, 1994.

In German language

- Sieg, G. Spieltheorie, Oldenbourg Verlag, 2005.
- Holler, M., Illing, G. Introduction to game theory, Springer-Verlag, 1996.
- Güth, W. Spieltheorie und ökonomische (Bei)Spiele, Springer-Verlag, 1999.
- Schlee, Walter. Einführung in die Spieltheorie, Vieweg Verlag, 2004.

Interesting links on the Internet with many more resources

- www.gametheory.net (Comprehensive page on game theory)
- <http://levine.sscnet.ucla.edu/general.htm> (What is game theory? Levine)
- <http://william-king.www.drexel.edu/top/class/histf.html> (History of game theory by Paul Walker)
- <http://kuznets.fas.harvard.edu/~aroth/alroth.html> (Game theory and experimental economics page by Al Roth)
- <http://arielrubinstein.tau.ac.il/> (Game theory by Ariel Rubinstein)

Further

- Schelling, Thomas C., *The Strategy of Conflict*, Cambridge (Mass.): Harvard University Press, 1960.
- Nasar, Sylvia, *A Beautiful Mind: A Biography of John Forbes Nash, Jr.*, Simon and Schuster, 1998. (The film "A Beautiful Mind" won 4 Oscars in 2002 (including best picture)).