

Electronic Markets

Summer Semester 2015

Course Description:

Electronic markets are an essential building block of today's networked service economy. We face them in automated stock exchanges, auctions at ebay and Google, as well as in industrial contracting. By enabling the trade and allocation of frequencies for wireless communication (UMTS, LTE) and emission certificates, electronic markets shape the future of our planet, our economies, and our societies. However, the design and implementation of market mechanisms is highly complex. Markets need to be protected from cheating by individual agents or full-blown market failures. The lecture "Electronic Markets" seeks to provide students with an understanding of how electronic market platforms are analyzed, designed, and introduced.

The topics covered in the lecture can be divided into three broad areas:

- *The microstructure.* This area includes rules that define how markets operate and covers, for instance, a recap of game theory and auction rules for single-unit and combinatorial auctions. This is the main focus of the lecture.
- *The IS infrastructure.* This area contains issues concerning the implementation of electronic markets, such as computational complexity.
- *The business structure.* This area outlines how the electronic market is offered to its customers and covers issues such as enforcement, trust, and monitoring.

Students learn to comprehend, to enhance, and to evaluate the design potentials of electronic market platforms. The participation in the exercise sessions is highly recommended. During the exercise sessions, students will get hands-on experiences with game-theoretical experiments and different auctions formats.

Credit Points:

If you are a student within the M.Sc. VWL, M.Sc. Economics (profiles "Finance" and "Economics & Politics"), or M.Sc. Informatik programs:

Electronic Markets is offered only as a 6 ECTS option, including lecture and hands-on exercise sessions.

If you are a student within the M.Sc. Economics profile "Information Systems and Network Economics":

Electronic Markets is offered for 3 ECTS or for 6 ECTS. **We highly recommend the 6 ECTS option**, since this includes the exercise sessions where you gain hand-on experiences for a better understanding of the lecture materials. If you choose 6 ECTS, you can either split them 3/3 into the mandatory and elective blocks or put all 6 ECTS into the elective block (if your mandatory requirements are met by taking Security and Risk Management at Prof. Müller's chair).

Communication

All announcements and materials will be posted on ILIAS.

Timeframe and Location

Lecture and exercises are held in blocks during the first half of the semester. Please note that all lectures and exercises start and end sharp on the full hour (with 15 minute breaks between Friday blocks).

Lecture:

Wed	22.04.2015	10.00 – 12.00	HS 1199
Fri	24.04.2015	08.00 – 10.00	HS 2004
Fri	24.04.2015	10.15 – 12.15	TBA
Wed	29.04.2015	10.00 – 12.00	HS 1199
Wed	06.05.2015	10.00 – 12.00	HS 1199
Fri	08.05.2015	08.00 – 10.00	HS 2004
Fri	08.05.2015	10.15 – 12.15	TBA
Wed	13.05.2015	10.00 – 12.00	HS 1199
Wed	20.05.2015	10.00 – 12.00	HS 1199

Exercise Session:

The exercise sessions will consist of exercise sheets and hands-on experiments. The exercise sheets will be discussed in the whole group; students will be assigned to one of two groups for the hands-on experiments. Detailed information will be provided in the first lecture.

Group A

Fri	22.05.2015	08.00 – 10.00	2114 (PC-Pool)
Wed	03.06.2015	10.00 – 12.00	HS 1199
Wed	10.06.2015	10.00 – 12.00	HS 1199
Fri	12.06.2015	08.00 – 10.00	2114 (PC-Pool)

Group B

Fri	22.05.2015	10.15 – 12.15	2114 (PC-Pool)
Wed	03.06.2015	10.00 – 12.00	HS 1199
Wed	10.06.2015	10.00 – 12.00	HS 1199

Fri 12.06.2015 10.15 – 12.15 2114 (PC-Pool)

Final Exam

The final exam will take place either during the week June 15 or the week of June 22. The 3 and 6 ECTS exams will have a duration of 45 and 90 minutes, respectively.

Policies, Procedures, and Grading

During the exercise sessions, students will have the opportunity to earn bonus points for the exam. The bonus points will only be added for those students that have passed the exam. Students can earn up to 2 bonus point by participating in the experiments (Friday exercise sessions). Additionally, students can earn up to 6 points by passing in the exercise sheets, which will be subsequently discussed during the Wednesday sessions. Students are awarded 2 points if they have correctly solved 50 percent or more of an exercise sheet, and 1 additional bonus point if they have correctly solved 90 percent or more of an exercise sheet.

Bonus points can be applied to a 3 ECTS exam, but at a 50% discount.

Instructors

Prof. Dr. Dirk Neumann
Tobias Brandt

Accompanying Literature

There is no single accompanying book to this lecture, but several papers will be announced along the course. To get a general notion on the topics of designing electronic markets, please refer to the following three papers:

Roth, A. The Economist as Engineer: Game Theory, Experimental Economics and Computation as Tools for Design Economics. *Econometrica* 70(4): 1341-1378, 2002.

Weinhardt, C., Holtmann, C., Neumann, D. Market Engineering. *Wirtschaftsinformatik* 45(6): 635-640, 2003.

Wolfstetter, E. *Topics in Microeconomics - Industrial Organization, Auctions, and Incentives*. Cambridge: Cambridge University Press, 1999.

Contact

Tobias Brandt
tobias.brandt@is.uni-freiburg.de