Economics 9471: Advanced Game Theory
Fall 2014

Class time and location: Tuesday/Thursday 9:30-10:45am, 206 Middlebush Hall
Instructor: Oksana Loginova, 333 Professional Bldg, loginovao@missouri.edu
Office hours: Wednesday 1-2pm, or by appointment

Course description: This course presents core concepts in game theory and illustrates their uses with a range of economic applications. It will be assumed that you know microeconomic theory as covered in Econ 8451.

Textbooks: The main sources for this class are Fudenberg & Tirole, Game Theory, MIT Press, 1991, and Gibbons, Game Theory for Applied Economists, Princeton University Press, 1992. The course will also draw on assorted papers, as listed below.

Course requirements and grading: There will be 10 homework assignments, a midterm exam (Thursday, October 16) and a final exam (Tuesday, December 16, 7:30-9:30am). All exams will be of the problem-solving type. Your grades will depend on your performance on the homework assignments (25%), the midterm exam (35%) and the final exam (40%).

Course blackboard site: The course information, homework assignments, extra practice materials and announcements (including any changes made regarding the class) can be found on the course blackboard site. You may also check your homework and exam scores on the course blackboard.

Topics:

Static Games of Complete Information

- Basic Theory
  - normal-form games (quick review)
  - dominant and dominated strategies (quick review)
  - Nash equilibrium and its existence
- Applications: Static Oligopoly Games
  - Cournot and Bertrand competition (covered in Econ 9452)
  - differentiated duopoly, Hotelling linear and Salop circular city models (covered in Econ 9452)
  - strategic complements and substitutes [1]
  - spatial competition [2], [3]
  - the symmetric full-information all-pay auction [4]
  - price dispersion [5]

Dynamic Games of Complete Information

- Basic Theory and Applications
  - extensive-form games (quick review)
  - backwards induction and subgame perfect Nash equilibrium (quick review)
- a simple model of market entry
- a two-period introduction to bank runs [6]
- Stackelberg duopoly model (covered in Econ 9452)

- Repeated Games
  - finitely repeated games
  - infinitely repeated games and the Folk theorem
  - collusion between duopolists in a supergame (covered in Econ 9452) [7]
  - reputation (covered in Econ 9452)

- Full-Information Dynamic Bargaining
  - the war of attrition [8]
  - Rubinstein-Stähl bargaining model

Static Games of Incomplete Information

- Basic Theory and Applications
  - Bayesian Nash equilibrium
  - mechanism design and the revelation principle
  - monopolistic screening

- Auction Theory
  - the symmetric independent private values model [9], [10]
  - Vickery auction
  - the first-price sealed-bid auction
  - abstract auctions and the revenue equivalence theorem
  - optimal auctions and efficiency

Dynamic Games of Incomplete Information

- Basic Theory and Applications
  - perfect Bayesian equilibrium
  - Spence’s model of job-market signaling (covered in 9452) [11]
  - Myers and Majluf’s model of corporate investment [12]

- Other Applications of Perfect Bayesian Equilibrium (if time permits)
  - cheap-talk games [13]
  - a two-period introduction to Coasian dynamics [14]

Reading List (not in alphabetic order)


**Makeup exams:** Students are expected to take exams at the times scheduled in the syllabus. Possible exceptions include serious illness, family emergency, or a legitimate conflict with recognized University activities. If these apply, you must contact me to request a makeup. Make these arrangements as soon as you know of the conflict – before the exam if possible.

**Statement on academic integrity:** Academic integrity is fundamental to the activities and principles of a university. All members of the academic community must be confident that each person’s work has been responsibly and honorably acquired, developed, and presented. Any effort to gain an advantage not given to all students is dishonest whether or not the effort is successful. The academic community regards breaches of the academic integrity rules as extremely serious matters. Sanctions for such a breach may include academic sanctions from the instructor, including failing the course for any violation, to disciplinary sanctions ranging from probation to expulsion. When in doubt about plagiarism, paraphrasing, quoting, collaboration, or any other form of cheating, consult the course instructor.

**Statement concerning students with disabilities:** If you anticipate barriers related to the format or requirements of this course, if you have emergency medical information to share with me, or if you need to make arrangements in case the building must be evacuated, please let me know as soon as possible. If disability related accommodations are necessary (for example, a note taker, extended time on exams, captioning), please register with the Office of Disability Services (http://disabilityservices.missouri.edu), S5 Memorial Union, 882-4696, and then notify me of your eligibility for reasonable accommodations. For other MU resources for students with disabilities, click on “Disability Resources” on the MU homepage.
Statement on intellectual pluralism: The University community welcomes intellectual diversity and respects student rights. Students who have questions or concerns regarding the atmosphere in this class (including respect for diverse opinions) may contact the Departmental Chair or Divisional Director; the Director of the Office of Students Rights and Responsibilities (http://osrr.missouri.edu/); or the MU Equity Office (http://equity.missouri.edu/), or by email at equity@missouri.edu. All students will have the opportunity to submit an anonymous evaluation of the instructor at the end of the course.