

22C : 196 : 003 Computing Equilibria in Markets and Games Fall 2005

Class Schedule

3.55–5.10, TTh at 217 MacLean Hall

Instructor

Kasturi Varadarajan: 101E MacLean Hall, 353-2541, kvaradar@cs.uiowa.edu
Office hours: 3.00–4.00 pm, Monday and Wednesday

Course Web Page

www.cs.uiowa.edu/~kvaradar/fall2005/games.html

Departmental Information

Department of Computer Science, 14 Maclean Hall

Content

The course will be somewhat broader than outlined in its description. Four major themes are:

1. Models and solution concepts, such as strategic games and Nash equilibrium, cooperative games and the core, simple models of economies and the market equilibrium.
2. Algorithms for solving the models, that is, computing the solution given the model. Efficient computability in special cases.
3. Applications of the models to computer science situations, such as modelling selfish routing as a strategic game.
4. Applications of computer science ideas such as computational complexity, automata, etc. to game theory.

Some papers referenced in the course webpage will give a more concrete idea, if you are in a real hurry. Note that the list of references is constantly evolving.

Reference Books

The following books are great references for theme 1, but you are certainly not expected to buy either of them.

1. *A Course in Game Theory*, by Osborne and Rubinstein, MIT press

2. *Microeconomic Theory*, by Mas-Colell, Whinston, and Green, Oxford.

For the rest of the themes, we will mainly rely on research articles.

Prerequisites

An exposure to the design and analysis of algorithms such as that obtained in an undergraduate/graduate algorithms course.

Grading

Will be based on an as yet undetermined number of home works (40 percent) and a survey paper (60 percent). There will be no exams. The survey paper can be on any topic that we will touch upon in the course. We will encounter a fairly large list in the first half of the course, at the end of which you should choose one topic to focus on in the second half. More later on what is expected in the survey paper.

Students with disabilities

I need to hear from anyone who has a disability which may require some modification of seating, testing or other class requirements so that appropriate arrangements may be made. Please see me after class or during my office hours.