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Office Hours: Mondays 11am–12pm

ECO426H1F: MARKET DESIGN
FALL 2016

CLASSES: 2:10–4:00pm Thursdays in UC 144

TOPICS: The first half of the course will be devoted to the study of auctions. We will begin with the basic theory of auctions of a single object, exploring theoretical models of bidding in various auction formats and questions of how to design auctions to maximize revenue or efficiency. We will then move on to auctions of multiple objects, with an emphasis on radio spectrum auctions and keyword search auctions, exploring how these auctions operate in practice and how insights from the basic theory inform their design.

The second half of the course will explore the theory and practice of centralized matching markets, including the problems of matching students to schools, medical residents to hospitals, and donors to recipients for kidney transplants.

RECOMMENDED READING: *Auction Theory*, by V. Krishna, Academic Press.

Two-Sided Matching: A Study in Game-Theoretic Modeling and Analysis, by A.E. Roth and M.A.O. Sotomayor, Cambridge University Press.

Who Gets What—and Why: The New Economics of Matchmaking and Market Design, by A.E. Roth, Houghton Mifflin Harcourt.

Krishna provides thorough coverage of many aspects of auction theory, with relatively little discussion of practical issues of auction design. Both the scope and depth of the theory go beyond what we will cover in this course. Similarly, Roth and Sotomayor offers a fairly comprehensive treatment of the theory of two-sided matching, making it a useful reference for the second half of the course. Roth is a popular book surveying some of the main issues in market design, eschewing theory in favour of anecdotes.

EVALUATION:

Problem Sets - 20%

Midterm Exam - 40%

Final Paper - 40%

Problem sets. There will be two problem sets, one for each half of the course. Problem sets will be due in class. In case of illness, problem sets may be submitted to the TA by email. Late problem sets will not be accepted under any circumstances. Working in groups on problem sets is permitted, but you must submit your own answers with explanations in your own words (and equations).

Midterm. The midterm exam will take place in class from 2:10-4pm on October 27th. The format of the midterm will be announced earlier in October.

Students who miss the midterm due to a medical issue must notify me by email before the exam begins. An original Verification of Student Illness or Injury Form completed by a licensed medical doctor or nurse practitioner must be provided to me within one week of the exam date. If I find the documentation acceptable, I will schedule a make-up exam. Participating students will be notified of the date and time of the exam by email, possibly as late as the evening before the make-up will take place. Any student who misses the make-up exam will get zero; there will be no make-up make-up.

Note that providing false or misleading information in support of a request for a make-up is a serious academic offense.

Final paper. As you know, the number of spaces for students in courses at U of T is limited. For the final paper, you will write a proposal describing how to design the rules for allocating students to courses. These rules should take the courses offered and the space in each course as given; your design cannot, for example, involve increasing the number of sections of a highly demanded course. Your paper should clearly outline the main goals that are to be achieved by the matching mechanism, as you see them. (It may be helpful to describe here any major problems you see with the system currently in use.) You should then provide a detailed description of a proposed mechanism. It is critical that this description be precise and unambiguous, leaving no doubt as to how the mechanism would operate. Finally, you should explain how well you expect your design to achieve the goals that you outlined, and identify any particular strengths and weaknesses relative to the current system.

Your paper will be evaluated on the merits of the proposal, together with the clarity and depth of reasoning you provide. The ideal paper will combine insights from theory we discuss in class with careful consideration of practical issues. There is no length requirement; take whatever space you need, while being careful to write concisely. As a very rough guide, I expect 1500–2000 words to be typical, although shorter or longer papers are perfectly acceptable. However, unnecessary length due to repetition or irrelevant digressions will be penalized.

Working on the paper in groups is not permitted. To avoid suspicion, I strongly recommend keeping any ideas to yourself.

Papers are due at midnight at the end of the day on December 7th. Late papers will be penalized at a rate of 10 percentage points each day (incurred at midnight). This penalty will not be waived, nor will individual extensions be granted, even with a medical note. We will use turnitin.com for paper submission. Please note the following (taken from the official University policy):

Normally, students will be required to submit their course essays to Turnitin.com for a review of textual similarity and detection of possible plagiarism. In doing so, students will allow their essays to be included as source documents in the Turnitin.com reference database, where they will be used solely for the purpose of detecting plagiarism. The terms that apply to the University's use of the Turnitin.com service are described on the Turnitin.com web site.

Students who choose to opt out of this service must inform me by the end of October, and are to submit pdf versions of their papers by email to colinbstewart@gmail.com.

ACADEMIC INTEGRITY: Suspected cases of academic dishonesty will be taken very seriously. Please familiarize yourself with the Code of Behaviour on Academic Matters. Additional information is available at <http://www.artsci.utoronto.ca/osai> and <http://life.utoronto.ca/get-smarter/academic-honesty/>. Note that being unaware of rules or policies is not a valid defense in cases of academic dishonesty.

TA: The TA for the course is Chris Dobronyi. He will hold occasional office hours at times and locations to be announced later. His email address is christopher.dobronyi@mail.utoronto.ca.

EMAIL: Email should be used only for logistical questions about the course. Questions about course content should be asked in person, either at office hours or after class. If you do not receive a response within two days, please resend the email.

Course materials and announcements will be posted on Blackboard. You are responsible for checking Blackboard regularly.

IMPORTANT DATES:

Oct 27: midterm exam (in class)

Dec 7: final paper due