



ECON 3305 Market Design

Fall 2026

Instructor: Prof. M. Utku Ünver

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Class Hours: Mon–Wed 12:00 – 1:15 pm at O’Neill Library 257

Office Hours: Wed 1:30 – 3:00 pm

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Your TA will also hold office hours; I will announce the date and time.

Course Objectives: This is an upper-level Economics elective on Market Design. It is primarily theoretical, builds on the microeconomic theory course all of you have taken, and connects with and uses game theory and, to some degree, industrial organization. The aim of the course is to provide a basic background and to introduce the analytical concepts of the emerging field of market design in economics.

The course has policy components as well as real-world application components; however, its backbone is basic microeconomic theory, sometimes using discrete mathematics and calculus.

Course Requirements and Grading:

1. Three exams (two **midterms** and a **final**) will test the students’ work in the class.
 - Midterm 1: Wednesday, September 30, during the class hour. **30%**
 - Midterm 2: Monday, November 2, during the class hour. **30%**
 - Final: TBA (finals week). **32%**
2. There will be **homework (HW)** assignments to turn in. They count for **8%** of the grade.

Teaching & Learning Method:

- Lectures.
- Self-study.
- Solving problems and HW assignments.

Lectures:

- Lecture slides will be provided on [Canvas](#) for each class.
- Students are expected to come to each class having read the material for the coming week. Print out the class slides or bring a tablet device, as you will still need to take notes on them or on additional blank sheets.
- **I discourage the use of laptops in the class for note-taking. However, smartphones are not allowed in any form.**
- Participation during the lectures is very much encouraged, with questions and answers to my questions. The stupidest question is the question that is not asked.
- **Please bring name tags to each and every class**, so that I can learn your names quickly (although I am very bad at calling on you by name during class instead of just saying “yes” when somebody raises a hand, I will try my best; by the way, I am learning your names in the background).

Exams:

- Each exam will test only the new material.
- Exams will be closed-book with no electronic devices other than **dumb** calculators (no exceptions; you cannot use scientific calculators, smartphones, tablets, etc., as calculators). You will most likely not need calculators anyway.
- **There will be no bathroom breaks in the exams. So, come to the exam accordingly.**

HW Assignments:

- Regular HW exercises will be assigned.
- You can work in groups of at most two students on the HW assignments. Everybody should indicate on their turned-in assignment how and with whom they solved the questions, and each student must turn in an individual assignment. If you used AI assistance, please disclose it; doing so will not affect your grade, but failing to disclose it will, as we are quite sophisticated at detecting such help. Disclosure is the only *restriction* on using AI; note, though, that the **handwriting requirement below is not negotiable.**

- However, if you rely on AI in preparing your HWs, you can be sure that you will not fare well on the in-class exams.

How much you need it and how much you rely on it are therefore things for you to figure out. But since learning is the objective, I am not banning the use of AI help in any way. It can be a good (though imperfect and sometimes misleading) aid for learning concepts that you do not understand.

- On [Canvas](#), you will turn in scanned PDFs of **handwritten solutions** for HWs. This will be the **only acceptable** form for turning in HWs.

Here are some ways to **scan PDF** documents on your phone besides standard ways:

iPhone: Notes app (Notes → camera icon → Scan Documents) or the Files app.

Android: Google Drive → “+” → Scan (also now built into Google Photos and the camera on many Pixel/Samsung phones).

For most everyday scanning, there are also free third-party apps worth mentioning:

Microsoft Lens, Adobe Scan, Genius Scan

Study Guide:

- **Read** the lecture slides and your own notes and also chapters from the textbooks and survey articles, as they usually have more explanation than the lectures and they can complement what I am trying to achieve in the course notes and slides.
- **Problem solving** is essential for improving one’s understanding in this course. HW and exercise questions will be your main way to prepare for the exams, as many topics in this class use iterative algorithms, and the only way to internalize and learn these algorithms will be using them in practice and literally executing them by hand and understanding what each step accomplishes. **You are responsible for knowing how these mechanisms work.** Also, some open-ended questions will test your understanding of the material.

Along with the HW questions, I will post exercise questions for each class on [Canvas](#) and later provide their answers. These are separate from the graded HW assignments and are only for your own preparation and learning.

- Haeringer’s book (the main textbook) and Sönmez’s manuscript are very good sources for the matching and assignment models.

More advanced material on matching and assignment is given in the survey chapters of Sönmez and mine. Two-sided matching is also covered by Roth and Sotomayor’s book in a more advanced manner.

Haeringer does not cover reserve systems and treats living-donor kidney and liver exchange only briefly; for those topics, the other sources are the primary sources.

The auction part of the course follows Haeringer.

Course Materials:

1. Course slides (provided as a PDF on [Canvas](#) and updated periodically)
2. *Market Design: Auctions and Matching*, Guillaume Haeringer, MIT Press, 2018 (recommended that you buy it; see the [publisher's page](#)). The BC bookstore should also carry it.
Chapters: 1 Introduction; 2 Simple auctions; 3 An analysis of eBay; 4 The Vickrey–Clarke–Groves auction; 5 Keyword auctions; 6 Spectrum auctions; 7 Financial markets; 8 Trading; 9 Matching; 10 The medical match; 11 Assignment markets; 12 Probabilistic assignments; 13 School choice; 14 School choice: further developments; 15 Course allocation; 16 Kidney exchange.
3. *Minimalist Market Design*, Tayfun Sönmez ([draft freely available for download](#))
4. “Influencing Policy and Transforming Institutions: Lessons from Kidney/Liver Exchange.” In I. Lo, M. Ostrovsky, P. A. Pathak (Eds.): *New Directions in Market Design*, University of Chicago Press, February 2026, Chapter 7, 153–171, by Tayfun Sönmez and M. Utku Ünver ([draft freely available for download](#))
5. “Matching under Non-Transferable Utility: Theory.” In Y.-K. Che, P.-A. Chiappori, B. Salanié (Eds.): *Handbook of the Economics of Matching*, Volume 2, Elsevier, November 2025, Chapter 1, 1–118, by Tayfun Sönmez and M. Utku Ünver ([draft freely available for download](#))
6. “Matching under Non-Transferable Utility: Applications.” In Y.-K. Che, P.-A. Chiappori, B. Salanié (Eds.): *Handbook of the Economics of Matching*, Volume 2, Elsevier, November 2025, Chapter 3, 177–306, by Tayfun Sönmez and M. Utku Ünver ([draft freely available for download](#))
7. *Two-Sided Matching: A Study in Game-Theoretic Modeling and Analysis*, Alvin E. Roth and Marilda A. Oliveira Sotomayor, *Econometric Society Monographs* 18, Cambridge University Press, 1990, the standard reference on two-sided matching (see the [publisher's page](#)); O'Neill Library has it. It is written for graduate students, but Chapters 2–4 (the one-to-one theory) and Chapter 5 (the college admissions model and the labor market for medical interns) read well alongside our lectures.

Course Outline:

I am teaching this course for the first time. Therefore, the outline is a rough guideline for what will be covered in class, and the actual coverage will depend on how things go in practice.

Bracketed readings are keyed to the **Course Materials** items above: **H** = Haeringer (2); **MMD** = *Minimalist Market Design* (3); **KL** = Kidney/Liver chapter (4); **T** = Sönmez–Ünver *Theory* (5); **A** = Sönmez–Ünver *Applications* (6); **RS** = Roth–Sotomayor (7). Numbers are chapters or sections within each source.

- Introduction
 - Markets and market design [H 1]
 - The benchmark: the welfare theorems, and the assumptions behind them [course notes; H 1]

- Policy: How, why, and when to design a market [MMD 1–2, 4]
- Matching & Assignment
 - Assignment under common ownership: house allocation; queues, lotteries, pseudo-markets; [H 11, 12, 15; T 3.1–3.2; A 7]
 - Assignment under private and mixed ownership: housing markets; house allocation with existing tenants; applications: living-donor kidney and liver exchange [H 11, 16; MMD 5, 7, 12; T 2.2, 2.5, 3.3–3.4; A 2–3, 8.4; KL]
 - Two-sided matching: one-to-one; many-to-one; application: entry-level labor markets and balanced exchange [H 9–10; MMD 3.2.2, 6.4; T 2.3–2.4; A 6; RS 2–5]
 - Assignment under priority-based entitlements; applications: school placement and school choice [H 13–14; MMD 6; T 4.1; A 8.1–8.2]
 - Reserve allocation; application: allocation of COVID therapeutics [MMD 9–11; T 4.2; A 5, 8.3]
- Auctions
 - Simple auctions; applications: eBay, keyword auctions [H 2–3, 5]
 - Multi-unit and divisible good auctions; applications: treasury bond auctions and auctions in other financial markets [H 7]
 - Multi-object auctions with complementarities; application: telecommunication spectrum auctions [H 4, 6]
 - Double auctions; application: stock market [H 7–8]

Statement on Academic Integrity:

The pursuit of knowledge can proceed only when scholars take responsibility and receive credit for their work. Recognition of individual contributions to knowledge and of the intellectual property of others builds trust within the University and encourages the sharing of ideas that is essential to scholarship. Similarly, the educational process requires that individuals present their own ideas and insights for evaluation, critique, and eventual reformulation. Presentation of others' work as one's own is not only intellectual dishonesty, but it also undermines the educational process.

Academic integrity is violated by any dishonest act which is committed in an academic context including, but not restricted to the following:

CHEATING is the fraudulent or dishonest presentation of work. Cheating includes but is not limited to: the use or attempted use of unauthorized aids in examinations or other academic exercises submitted for evaluation; fabrication, falsification, or misrepresentation of data, results, or sources for papers or reports; copying from another student's work; actions that destroy or alter the work of another student; unauthorized cooperation in completing assignments or during an examination; the use of purchased essays, term papers, or preparatory research for such papers; submission of the same written work in more than one course without prior written approval from the instructors involved; dishonesty in requests for make-up exams, for extensions

of deadlines for submitting papers, and in any other matter relating to a course; and work generated through unsanctioned and/or undocumented artificial intelligence (A.I.) assistance.

PLAGIARISM is the act of taking the words, ideas, data, illustrations, or statements of another person, program, or source, and presenting them as one's own. This includes using the assistance of artificial intelligence (A.I.) text generators to perform central requirements of an assignment (i.e. reading, synthesizing, interpreting, writing, coding, programming, etc.) without both the explicit permission of the instructor and complete attribution and citation of A.I. assisted components. Each student is responsible for learning and using proper methods of paraphrasing, quotation, footnoting, and other forms of citation, to ensure that the original author, speaker, illustrator, or source of the material used is clearly acknowledged.

COLLUSION is defined as assistance or an attempt to assist another student in an act of academic dishonesty. Collusion is distinct from collaborative learning, which may be a valuable component of students' scholarly development. Acceptable levels of collaboration vary in different courses, and students are expected to consult with their instructor if they are uncertain whether their cooperative activities are acceptable.

Students have a responsibility to maintain high standards of academic integrity in their own work, and thereby to maintain the integrity of their degree. It is their responsibility to be familiar with, and understand, the University policy on academic integrity. Graduate and professional students should refer to their department or school for procedures for adjudicating alleged violations of academic integrity. Penalties for students found responsible for violations may depend upon the seriousness and circumstances of the violation, the degree of premeditation involved, and/or the student's previous record of violations.

For the full policy, see the University Catalog: [Academic Integrity Policy](#). Academic integrity is a very important matter. If you have any questions about what is allowed or not allowed, please discuss the matter immediately with the instructor.

Disability Statement:

If you have a disability for which you are or may be requesting an accommodation, you are encouraged to contact both your instructor and the Disability Services Office, Office of the Dean of Students, Maloney Hall, Suite 448, Phone: 617-552-3470, Email: disabsrv@bc.edu. Also see <https://www.bc.edu/bc-web/offices/studentaffairs/sites/dean-of-students/student-support/disability-services.html>.