

Economics 504
Professor: John Nachbar
Spring 2020
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Econ 504 – Syllabus

1 Introduction

504 covers material from [Mas-Colell et al. \(1995\)](#), hereafter MWG, chapters 1-9 on basic decision theory, demand theory, and game theory. 504 will also cover additional topics as time permits.

The current plan is that some more advanced theory topics will be taught by David Levine. Under this plan, my last class is March 25 (although I might also take March 30 if I feel a compelling need to). You will then have the first week of April free, then David will teach one month worth of material in the middle two weeks of April, and then you will have the last week of April free.

2 Requirements.

I will assign homework roughly weekly. You will “hand in” HW electronically, as PDFs.

Homework will not be used for your grade except to break ties. If I have two students with almost identical test averages, both close to a cutoff, but one has been diligent about homework (even if the HW has had errors) and the other has not, then I may give the student with the better homework the higher grade. Some of the homework questions are intended to be instructional; you may find them challenging.

You are *encouraged* to work together. It is perfectly fine to get answers from somebody else, *provided* that you tried to do it yourself first. I *expect* those with more math experience to help the other students.

Regardless of how you come by your answer, *you must write up the answer on your own*. I want to be able to give you feedback on proper writing style, so that you are prepared to write well for tests (not least of which is the prelim).

The first exam (“midterm”) for 504 will tentatively be Wednesday March 4, in class; this is the last class before Spring Break. The exam will be closed book, meaning that you may not consult the text, your notes, or any other material, nor may you communicate with anyone while taking the test. The test will be based on homework and class notes (rather than on the text, section, or supplemental reading).

I will not offer a makeup exam for the midterm. If you have to miss the test because, say, of illness or death of a family member then your course grade will depend on your homework grade and on your performance on the second 504 exam.

3 Outline

I rely mostly on my own notes, which are [posted online](#). I give chapter references to MWG and [Kreps \(2012\)](#). As noted earlier, if I find that I have time then I will cover additional topics, and I will amend this syllabus accordingly.

1. Basic Decision Theory. MWG 1, 3.B-C. Kreps 1-2, 4.
 - (a) Choice.
 - (b) Preferences.
 - (c) Utility.
 - (d) Special examples: Cobb-Douglas, CES, homothetic, and quasilinear utility.
2. Risk and Uncertainty. MWG 6. Kreps 5-6.
 - (a) Expected Utility.
 - (b) Risk aversion and risk dominance.
3. Competitive demand. MWG 2, 3.D-J, 4, 17.E-G. Kreps 2, 9-13. I anticipate that I may not be able to get through all of the material listed below.
 - (a) Utility maximization, Marshallian demand, indirect utility, expenditure, Hicksian demand, and the key equalities.
 - (b) The weak axiom and properties of individual demand.
 - (c) Integrability.
 - (d) Compensating and equivalent variation.
 - (e) Competitive GE demand.
 - (f) Aggregation and the Debreu-Mantel-Sonnenschein Theorem.

Remark. There is a close but subtle relationship between the material in MWG 2.F and the material in 3.G. I will be emphasizing the 3.G material.
4. Production and competitive supply. MWG 5. Kreps 9. My treatment will be very brief, probably only in the form of homework problems.
5. Game Theory. MWG 7-8. My objective here is to cover fundamentals for games in strategic and extensive form. Anqi Li covered topics in mechanism design in 503. Marcus Berliant covered some aspects of games in coalition form in Econ 504. David Levine will cover other game theory topics this semester.

- (a) Games in strategic form.
- (b) Games in extensive form.
- (c) Bayesian games.

4 Texts.

The texts are [Kreps \(2012\)](#) and [Mas-Colell et al. \(1995\)](#). Other first-year graduate microeconomics texts are [Kreps \(1990\)](#), [Varian \(1992\)](#), [Jehle and Reny \(2000\)](#).

A good resource for an overview of microeconomic theory are the relevant chapters in [Durlauf and Blume \(2008\)](#). These chapters are relatively short, relatively non-technical surveys targeted at advanced undergraduates or first-year graduate students and non-specialists. You can access [Durlauf and Blume \(2008\)](#) for free online through the WUSTL library.

5 Help.

There will be a help session on Fridays run by Xue Bai. I may take over one or more review sessions to discuss additional topics; any material covered this way in section will *not* be on a test. Also, I will also run a review session before any exams.

Xue will hold office hours on Wednesday 4-5pm, Seigle 378.

My office hours are Thursdays 10-Noon (note this is a change from what I wrote in class) or by appointment. e-mail is the best way to reach me.

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Because I am also teaching undergraduate intermediate micro (Econ 4011) this term, which is a new prep for me and also a large class, I have separated my office hours into 504 only and 4011 only sections. My office hours on Monday and Wednesday are Econ 4011 only. Nevertheless, I stress that I want you to come to my office hours, or to meet me by appointment, if you are having difficulty, or if you simply want to talk about some aspect of the course.

References

DURLAUF, S. N. AND L. E. BLUME, eds. (2008): *The New Palgrave Dictionary of Economics*, Palgrave.

JEHLE, G. A. AND P. J. RENY (2000): *Advanced Microeconomic Theory*, Addison Wesley, second ed.

KREPS, D. (1990): *A Course in Microeconomic Theory*, Princeton University Press.

KREPS, D. M. (2012): *Microeconomic Foundations I*, Princeton.

MAS-COLELL, A., M. D. WHINSTON, AND J. R. GREEN (1995): *Microeconomic Theory*, Oxford.

VARIAN, H. R. (1992): *Microeconomic Analysis*, W. W. Norton, 3 ed.