

Economics 219A  
Fall 2009

Matthew Rabin  
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University of California—Berkeley

# Foundations of Psychology and Economics

**Meets: Wednesdays 12:00-3:00, 608-7 Evans**

or, more precisely:

12:15 *sharp* to 2:59, with about 10-minute break shortly before 2:00

## Your Hosts

### **Matthew Rabin**

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### **Shachar Kariv**

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## **WHAT IS THE ECONOMICS 219A-B SEQUENCE, AND CAN/SHOULD YOU TAKE IT?**

The psychology and economics PhD field courses, Economics 219A-B, explore ways to formally model the findings of psychological, experimental-economic, and other research demonstrating departures from perfect rationality, self interest, and other classical assumptions of economics, and ways to test these findings in the laboratory and (especially) the field, as well as explore the economic consequences of these assumptions. (We also in principle (and occasionally in fact) offer two more psychology&economics courses, 219C (topics) and 219D (experimental economics) that can be combined with 219A to complete a field.)

These courses are for PhD students in the Economics Department and or other departments on campus who already have a solid background in microeconomic theory. This means that you have taken Economics 201A-B or their equivalents. Economics 201A-B is a year-long required Economics PhD sequence in microeconomics, including choice under uncertainty, incentive theory, and game theory. Microeconomic courses in other PhD programs on campus (and even many non-Berkeley Economics PhD courses) are generally *not* likely to be adequate substitutes.

Please note: the prerequisite for the course is not exposure to these general microeconomic topics; it is exposure at roughly the level of Berkeley's Economics 201A-B sequence. **This course is simply not suitable for those unprepared or uninterested in PhD-level economics, no matter the intensity of interest in psychology or behavioral economics. Really.**

Admission to 219A will be automatic for regular Berkeley PhD or undergraduate students in any department who have passed 201A-201B with grades of B+ or better, and is otherwise by my consent. Undergraduates with *advanced* training in microeconomic theory (having taken either Economics 104 or 201A) and who have an interest in Economics graduate studies are also encouraged to consider taking the course, but should talk to me. Students from the regular Bonn and Mannheim German exchange program are almost always fully prepared, as well, and because of this and the official status of the exchange program are welcome and encouraged to take the course. Because of space, class-size, and resource limitations, the course is not open for credit (grades or pass-fail) to any other visiting students.

## **SPECIAL 2009-10 STRUCTURE**

Primarily because I am taking sabbatical leave in the 2<sup>nd</sup> half of the fall semester, we are teaching 219A-B under an unusual structure this year. The course will be co-taught in roughly the following order and division:

Fall: Matthew  $\frac{1}{2}$ , Shachar  $\frac{1}{4}$ , and Stefano  $\frac{1}{4}$  of the semester.

Spring: Matthew  $\frac{1}{2}$  and Stefano  $\frac{1}{2}$  of the semester.

The first half of the fall is the same set of topics as usually taught in 219A—namely, theoretically exploring more realistic preferences mostly under the assumption of full rationality.

The first half of the spring will be what is usually the 2<sup>nd</sup> half of the fall—exploring theoretical departures from full rationality (in particular, narrow bracketing, misprediction of preferences, self-control problems/present bias, and heuristics and biases). The 2<sup>nd</sup> half of the fall this year will be (roughly) empirical approaches and findings about the two main categories of preferences introduced in the first half—reference-dependent preferences and social preferences.

Shachar Kariv will teach 3-4 lectures beginning October 14, presenting a necessarily brief introduction to advanced topics in behavioral/experimental decision theory and designed to develop theoretical and experimental tools. His primary applications will be to risk preferences (including aspects insufficiently covered in the my part of the course) and social preferences. Stefano will teach the final 3-4 lectures. After a brief introduction to methods for empirical research using field data, he will discuss the evidence on reference dependence and on social preference. The evidence will cover a variety of applications, from labor supply to portfolio choice, from workplace effort to charitable giving. This part focuses on “field” testing the predictions of behavioral models presented in the first two parts of the class.

We will hand out detailed syllabuses for Shachar’s and Stefano’s parts of the course when they begin teaching.

## GRADING AND CREDIT FOR 2009-10

There will be two in-class 3-hour exams, with a midterm covering material from Matthew's part of the course on October 7, and a final combining material from Shachar's and Stefano's parts of the course on December 9. Despite our best efforts at procrastinating, the University managed to change the semester schedule after lengthy and careful three-way decisions over how to organize the course. December 9 has now become a "reading period". Any students for whom having this exam before the designated exam period should let us know right away. More generally, we must be informed well in advance for both exams of any reason the exam cannot be taken during the scheduled time, and those planning to get credit for the course must be aware that only fully recognized official reasons for missing an exam (or any other obligations for the course) will be accepted, and even excruciatingly legitimate reasons will only be accepted if done with proper timing.

More generally, all students are responsible for all requirements as on the official schedule (if missing any class—including the Wednesday before thanksgiving, when we will be holding a lecture—students are responsible for getting on their own the material presented or turning in problem sets on time, etc.)

Requirements will include problem sets for each part of the course. (Two longish problem sets for Matthew's part, and 2-4 problem sets for the 2<sup>nd</sup> half of the course.) Matthew's part of the course will count 50% the combined Shachar/Stefano will count 50%. The grade for Matthew's part of the course will be based 60% on the midterm and 30% each on the two problem sets, with the 120% reduced to 100% by dropping your worst 20%.

## **Tentative Schedule of Lectures**

There will be 12-13 three-hour lectures. The following schedule is tentative.

<b>August 26</b>	Introduction: perspectives of the course & conceptual framework Introduction to belief-based preferences
<b>September 2</b>	Anticipatory utility and ego utility Belief-based preferences and personal equilibrium Reference-dependent preferences
<b>September 9</b>	Reference-dependent preferences and risk attitudes
<b>September 16</b>	Reference-dependence: expectations as the reference point Prospective Utility, monetary preferences, and narrow framing
<b>September 23</b>	Introduction to Social Preferences Distributional Social Preferences
<b>September 30</b>	Social Preferences: self-image, ego utility, and reciprocity
<b>October 7</b>	<b>NO LECTURE – EXAM</b>
<b>October 14</b>	<b>Shachar</b>
<b>October 21</b>	<b>Shachar</b>
<b>October 28</b>	<b>Shachar</b>
<b>November 4</b>	<b>Shachar/Stefano</b>
<b>November 11</b>	<b>NO LECTURE – VETERAN’S DAY</b>
<b>November 18</b>	<b>Stefano</b>
<b>November 25</b>	<b>Stefano</b>
<b>December 2</b>	<b>Stefano</b>
<b>December 9</b>	<b>NO LECTURE – EXAM</b>

**The remainder of the syllabus is for Matthew’s parts of the courses—that is, 219A as traditionally taught.**

## **DETAILED COURSE DESCRIPTION**

### **MORE ON WHETHER TO TAKE THE COURSE OR NOT**

This course focuses on formal modeling. Students will be required on problem sets and exams to solve math problems of the form familiar from 201A-B, at a slightly more demanding level. The course will involve more words and more intuition and more classical middlebrow economic theory than the typical advanced theory field course. It will, of course, involve far more reading and discussion of the behavioral evidence and psychological foundations of our assumptions than do other theory courses—or any other economics courses. But, in the end, its emphasis is on formal modeling.

Economics 219A can be used as either part of a Psychology and Economics field or part of an Advanced Theory field. For the P&E field, it can in principle be combined with any one of Economics 219B (economic applications), 219D (experimental economics), or 219C (topics), but only 219B is being offered this year. For theory, it is most often used with Economics 206 or 209A, though it can also be combined in principle with 207A, 207B, 209B, or 296. While it will to some extent be oriented to those wishing to go into research in theory, it is probably even more useful for those who seek to apply behaviorally-inspired models for use in empirical work. It is also appropriate for those who wish merely to familiarize themselves with this material. I anticipate that many of those taking the class will not be planning to specialize in either theory or P&E, and I am enthusiastic about that fact.

The topics covered in this course are listed later in the syllabus. Generally I will assign readings covering some of the evidence suggesting that new assumptions would improve economic analysis, discuss this evidence very briefly in class, and then use this evidence to develop new formal models. When available, I will assign papers that contain the formal models. To keep the workload manageable, the number of assigned readings will be minimal, and too little to give a full sense of the relevant evidence; students are encouraged to read further.

If after you have read the syllabus you have any questions about whether this course is appropriate for you, please come talk to me.

### **DETAILED COURSE NON-DESCRIPTION**

Because it is designed as an introduction to modeling psychological phenomena that are not yet totally integrated into mainstream economic analysis, the material in this course is not entirely like what you've seen in most of your other courses. But it is *not* an alternative to mainstream economics. It is only about improving the psychological realism of formal economic assumptions, so as to use classical economic approaches to improve our answers to classical economic questions. Like all other courses, this course does not cover all topics that might be of interest. So, this course is ...

### **not about the philosophy or methodology of economics**

Maybe too little time is spent on methodology in graduate school. And some methodological quandaries inhere in the topics of this course. But beyond a brief discussion at the beginning, we will not spend time exploring methodological issues. Doing so takes time away from the substance. And I feel that usually when economists debate “Methodology” in the context of challenging existing assumptions, the debate ends up focusing on an abstract official line about appropriate methodology, rather than a realistic assessment of how workaday economic research is actually done. The maintained hypothesis of the course is that it is sensible for some economists to spend some of their time doing standard economic research that happens to incorporate some untraditional-within-economics elements of human nature that seem to be both true and economically relevant. (We also won’t spend time philosophically fretting about the nature of the terms “rationality” or “self interest”, etc.; we’ll try rather to be clear about the positive or normative content of claims of all particular assumptions.)

### **not about non-psychological models of bounded rationality**

We won’t consider models of bounded rationality (based on computer science, artificial intelligence, etc.) that are meant to capture cognitive limits of economic actors, but not based on evidence that humans think this way. In some arenas (e.g., “unforeseen contingencies”) I think it makes tremendous sense to focus on these alternative models of bounded rationality, and more generally this can be a very useful research agenda. But that’s not what this course is about. We will consider those models based on research focused more narrowly on the empirical evidence of what humans are like.

### **not about savanna economics**

Many people are interested in how the human species evolved to be the way we are, and most economists are most prone to think evolutionary arguments when being exposed to unfamiliar assumptions. Whatever the merits or demerits of an evolutionary perspective on social science, it is not what this course is about. Under the maintained hypothesis that in the (very long) “short run” we can treat the biological aspects of human nature as fixed, we won’t consider the biological dynamics of evolutionary change. We will try to figure out some facts about what humans are like, and see how that matters for the economy. Any empirical insights into how people are—from whatever source, including by researchers who find a focus on evolutionary pressures to be enlightening—is of course welcome. And presumably some researchers believe that the focus on evolutionary pressures will eventually yield high payoff in understanding humans as they currently are, at which point evolution-inspired insights into human nature about economically relevant behavior can be incorporated into a course like this. But this course will not emphasize why being the way we are was adaptive for our ancestors on the savanna.

### ***totally not an alternative to mainstream economics.***

In the most important senses, the course won’t at all be a departure from mainstream economics. I am a devotee of mainstream economic methods: methodological individualism; formal, careful, mathematical articulation of assumptions; logical analysis of what conclusions follow from those assumptions; and thoughtful empirical testing of both the assumptions and the conclusions. This isn’t the only way to approach social science, and it is true that obsessions with methodological individualism and mathematics can sometimes damage research. It is a good thing that these methods and standards are not imposed on all social-science research. Indeed, much of the evidence for the formal models we will be developing doesn’t meet economists’ narrow criteria for good research—and it should humble us that so much useful insight is derived from modes of research we do not employ. But it is my belief that the best way for economists to do economics in general, and the best way for us to use this material in particular, is with careful formal theory and statistical analysis. In these regards, the course will be purposely, pointedly, persistently, proudly, and ponderously mainstream.

# COURSE REQUIREMENTS

There will be two substantive problem sets (in my part of the fall course). Each will involve primarily formal problems. Problems will range in difficulty from moderately easy to quite hard. You are encouraged to work together on the basic problems, and very encouraged to come see me for help before they are due. But you are *not* allowed to read others' answers from past or present problem sets, and should only hand in answers that reflect your own understanding. These problems aren't meant to be simple, and don't panic if you struggle with them. But the problem sets will be graded for correctness, so please do seek help answering any problems you are struggling with *before* handing them in.

Please write legibly and clearly, crossing out anything not meant to be part of your answer, and clearly indicating your final answer. Please staple your problem set together—paper clips and folded corners are not a secure means of binding things together. And please remember that problem sets are due at the beginning of lecture on the due date. If you are not attending lecture or will be significantly late to lecture, please make sure I get the problem set prior to lecture. If you unexpectedly miss lecture or are late on the day a problem set is due, please send an e-mail explaining the reasons

There are a very large number of students in this course, and some limits to the amount of time that I and a reader being hired to help grade the problem sets can spend on them. Answers requiring too much ocular, linguistic, or (avoidable) cognitive effort won't be read. This doesn't mean that you need perfect penmanship and cunning concision; just that you make a minimal effort to write/type legibly and present your results clearly and succinctly. Problems will frequently require substantial math; you are welcome and encouraged to hand in all the work you did to reach an answer, but *please* make some effort to provide guidance through your steps of reasoning, and to flag work that will be superfluous to the reader. (Annotating and organizing mathematical arguments is also a good skill to develop for presenting models and results in research papers.)

Planned (but likely to some degree altered, especially with experimental ordering of material) schedule of problem sets:

- Problem Set 1:** Handed out September 2  
Due September 16, 12:14 p.m.  
Answer key distributed September 23  
Your answers returned September 23
- Problem Set 2:** Handed out September 16  
Due September 30, 12:14 p.m.  
Answer key distributed September 30  
Your answers returned October 7 (too late for the exam!).

## **RESEARCH**

You should now be beginning the shift away from learning the results of other peoples' research into conducting your own research. A major reason for teaching this material is to positively influence your research. Yet: This course won't focus on research. So: I encourage you to think about research on your own, with each other, and with faculty, including me. It is easy to shortchange this goal under the pressure of taking courses and other duties you have, so it requires some focus on your part to make sure to attend to it. I strongly encourage you to talk to me about ideas for research applying the material from this (or any) course. While I welcome discussions on any of your ideas, including theoretical or experimental research, I most strongly encourage ideas for "field-empirical" research, and especially ideas that do not merely test the validity of some of the principles and models discussed in the course, but are of direct general interest to economics. I enjoy talking to students about their ideas for empirical research.

If you are in the second year of the Economics PhD program, you should be attending at least one or two seminars regularly. This is invaluable for you to start your transformation into a research-focused life. I encourage you to attend the Psych and Econ seminar, Economics 218, Tuesdays 2-3:30 in 608-7 Evans. But I would also very strongly encourage you to attend at least one other seminar in some specific area of economics.

## **HANDOUTS**

I am an anachronism in so many ways. One is my unwebbedness: handouts, lecture notes, etc. will not be posted on the web (nor sent by e-mail). Students will be responsible for knowing what handouts have been distributed and getting these handouts. The primary source of such information should be attending class, of course (and showing up on time when you do so). But you should also contact a fellow student when you miss a lecture (and have him or her collect handouts for you if you know in advance you will miss it). In addition, I will post outside my office after each lecture a list of the handouts so far, and have leftover handouts in an envelope for 1 or 2 weeks after the lecture.

## **OFFICE HOURS**

Subject to announced changes, I plan to have open office hours through October 7 at the following times (these are also posted on my web page and on my office door):

Thursday, August 27, 3.30 to 4.30 (all welcome—priority to 219A students)  
Monday, August 31, 1.30 to 2.45 (all welcome—priority to 219A students)  
Friday, September 4, 3.15 to 4.30 (all welcome—priority to 219A students)  
Tuesday, September 8, 1.30 to 2.45 (all welcome—priority to 219A students)  
Friday, September 11, 3.15 to 4.40 (all welcome—priority to 219A students)  
Monday, September 14, 1.30 to 2.45 (all welcome—priority to 219A students)  
Friday, September 18, 3.15 to 4.40 (all welcome—priority to 219A students)  
Monday, September 21, 1.30 to 2.45 (all welcome—priority to 219A students)  
Friday, September 25, 3.15 to 4.40 (all welcome—priority to 219A students)  
Monday, September 28, 1.30 to 2.45 (all welcome—priority to 219A students)  
Friday, October 2, 3.15 to 4.40 (all welcome—priority to 219A students)  
Monday, October 5, 3.00 to 5.00 (219A students only)

## COMMUNICATING WITH ME

In class and elsewhere, please address me by some variant of my first name. Please don't call me Professor Rabin.

There is no GSI for this course, so I am your GSI. Please use my office hours, including and especially for help on the problem sets. It would be remarkable if you didn't need some assistance with the material, and I am here to help. Also, one of the benefits of open office hours is to accommodate many students at once; if fellow 219A students are in my office, please join in (I'll say so if for some reason I need to talk privately to a current visitor), and feel very free to show up in groups.

In addition to drop-in office hours, I always have sign-up office hours for advising and other purposes. The sign-up sheets are outside my office. Please **do not** sign up for these slots for course-related help as a general rule. If my scheduled office hours are always infeasible for you, let me know, and then I will encourage you to make appointments with me. But I ask that you schedule your studying so that you are prepared to ask questions during office hours, and do not attempt to schedule extra sessions merely because of poor timing in preparation.

The course is also meant to generate research ideas, which means you should talk to me about research as well. If you wish to talk about research, please freely sign up to do so. More generally, if for some reason you need to talk to me about something for which open office hours aren't appropriate, you should feel free to sign up. Also, for those in the Economics Ph.D. program, I and other faculty are always available to discuss *any* issues regarding the program.

Some gentle requests regarding office hours and on contacting me. First, my office hours end sharply at the end. E.g., don't arrive at 5:25 on Tuesday and expect a full session. Please arrive early if you have lengthy questions, or if you don't want to risk not having time due to others' questions. Also, you are very free to ask me *some* stuff by e-mail, especially to schedule things (e-mail better than phone messages) or if you think there is a typo or something on a problem set or handout. But please be aware that e-mail sucks for answering many types of questions. "How do I do Question 4?" or "What's up with bounded rationality?" are short questions with long answers. Also, please be aware that I typically don't respond at all to any e-mail concerning substantive course material right before exams (though accessible for panic attacks, emergencies, etc.).

Please do come to my office hours. I also like students to come by at least once early in the semester to introduce themselves—no need to have a particular agenda. I try to always have candy. I have toys as well, but you must earn my trust before I let you play with them.

# Readings

## Required Reading

The required text is Kahneman, Daniel and Tversky, Amos (editors), *Choices, Values, and Frames*, Cambridge University Press, New York, NY, US, 2000. (Referred to as CVF below.) It should be stocked at ASUC bookstore (and may be popular enough to be available elsewhere). The book is a collection of “recent classics” in psychological economics, and a few specially commissioned new writings. *Many* of the required readings in the course are from this book, serving by far as the main source for the psychological foundations (as opposed to formal modeling) topics in the course—both because I have made some effort to choose those chapters for your ease, and (more) because it happens to contain many of the awesomest writings in psychology & economics. I urge you to buy it and read it even if you are just auditing.

Below is a list of the anticipated required reading, in approximate order they will be covered. Any revisions will be announced in class. Even auditors should do as many of the required readings from CVF as possible. (And I highly recommend virtually every chapter in the book, including chapters that I am not assigning.) Ideally I will have separate more-detailed handouts of optional readings for specific topics.

0. Rabin, M. “Syllabus”

1. Thaler, Richard, “Towards A Positive Theory of Consumer Choice,” CVF Chapter 15.
2. Rabin, M. “Psychology and Economics” *Journal of Economic Literature*, March 1998.
3. DellaVigna, Stefano, *Journal of Economic Literature*, “Psychology and Economics: Evidence from the Field,” June 2009.
4. Koszegi B, “Emotional Agency,” *Quarterly Journal of Economics* 121 (1): 121-155 February 2006
5. Kahneman, D., Knetsch, J. and R. Thaler, “Anomalies: The Endowment Effect, Loss Aversion, and Status Quo Bias” CVF Chapter 8
6. Tversky, A. and Kahneman, D. “Prospect Theory: An Analysis of Decision under Risk,” CVF Chapter 2
7. Rabin, M. “Diminishing Marginal Utility of Wealth Cannot Explain Risk Aversion,” CVF Chapter 11
8. Koszegi, B and Rabin, M. (2006), “A Model of Reference-Dependent Preferences,” *Quarterly Journal of Economics*, 121(4), pp. 1133-1166.
9. Koszegi, B and Rabin, M. (2007), “Reference-Dependent Risk Preferences,” *American Economic Review*, 97(4), pp. 1047-1073.
10. Koszegi, B and Rabin, M., “Reference-Dependent Consumption Plans,” *American Economic Review*, June 2009.
11. Kahneman, D., Knetsch, J. and R. Thaler, “Fairness as a Constraint on Profit Seeking: Entitlements in the Market,” CVF Chapter 18
12. Charness, G. and Rabin, M. (2002), “Understanding Social Preferences with Simple Tests,” *Quarterly Journal of Economics*, August,

## Suggestions for Other Reading

Recommendations for further general and specific readings are listed in the 2008 syllabus that can be found on my web page.