

Economics 1036  
“Spring” 2022

Matthew Rabin  
Bnaya Dreyfuss

## Course Description

# Psychology and Economics of Beliefs

**Wednesdays 9:45am-11:45pm**  
**Room M15 Littauer Center**

**Professor: Matthew Rabin**

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**Teaching Fellow: Bnaya Drefuss**

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## Considering taking the course?

Registration is by consent of the instructor. (There is no lottery!) Students interested in taking the course should email Professor Rabin a resume/cv if you have one, an (unofficial) transcript of your courses and grades at Harvard (if you are visiting student, you can include a transcript from elsewhere), and the information sheet posted on his “classes” web page and on the canvas page, and. Please **after reading through this document thoroughly** email these **in pdf form** to matthewrabin@fas.harvard.edu (and cc Bnaya Dreyfuss at bdreyfuss@g.harvard.edu), and provide any additional information that you might want us to take into account in the text of your email, as well (again, **after reading this**) any additional questions you may have. While it is often good to submit some of these questions by email, if you prefer to instead or additionally discuss these, before classes begin Professor Rabin will have 15-minute meetings you can sign up for at <https://my.timetrade.com/book/9VFX2>.

(After the term begins, Professor Rabin will have abundant 30-minute slots you can sign up for as individuals or groups. Please go to <https://scholar.harvard.edu/rabin/officehours> for more general explanation for signing up.

## **WHAT IS THIS COURSE?**

This seminar focuses on how individuals and groups come to form beliefs about important things in their lives. We will review formal theories and statistical evidence about how individuals develop their beliefs from personal observations and experience, and how people learn from each other. We will also study difficulties in defining beliefs and in measuring beliefs, and the existence (or not) of data in different domains for what people actually believe. The two organizing themes will be (1) to compare the assumption of full rationality that is traditional in economic theory to evidence identified by psychologists about the types of errors people make, and, irrespective of whether we believe some conclusions are rational or influenced by an identifiable error, (2) to try to get an empirical sense of what people believe on topics that are important to them and important to society as a whole.

Students will be required to do some readings and to carefully look over some lecture notes that present some of the psychological evidence on how people form beliefs, as well ways we mathematically model errors in belief formation. Assignments will include three mathematical problem sets requiring you to solve for both what the rational conclusions are for processing information and what conclusions our models of errors predict people will reach.

The course will also involve reading research (and popular sources) on people's particular beliefs in different domains. and some oral and written analysis of such research. Most oddly, some of the course will involve you—to the degree you are comfortable and consistent with desire for privacy—analyzing and understanding how you go about forming beliefs relevant to your own economic, medical, and social choices. We will discuss some of the mechanisms being studied for improving beliefs. Required readings will include academic research in psychology, economic theory, and empirical economics, as well as some studies of what current beliefs are and some historical beliefs were.

## **CAN YOU TAKE THE COURSE, AND IS IT FOR YOU?**

The course is available solely to undergraduates at Harvard. It is not open to registration for masters or PhD students. Because it is a seminar course that emphasizes comfortable participation and mutual contributions to discussion in a small group of folk (in a small room!) sharing appropriate background and keeping up with the relevant material throughout the term, it is (1) not open to auditors, and (2) and may only take the course for a letter grade, not pass-fail.

Because of the heavy emphasis on rigorous formal theories and measurements along the lines of mainstream economics, the seminar requires background in microeconomics, mathematics, and statistics/econometrics. Students should be prepared in these subjects at roughly the exposure to material expected of an economics or applied math major in the middle of junior year. Although qualified students at earlier stages or with different backgrounds are encouraged to consider the course, it is simply not suitable for somebody who has not been exposed to (and is not interested in) math, statistics, and beyond-rudimentary microeconomics. Completion of courses at the level of Math 21A and Stats 110 are strongly advised, and Math 1A, Economics 1010A or (preferably) 1011A, and some probability or statistics course are required. No single formal prerequisite is either sufficient (especially if you severely struggled with the relevant course) or necessary to enroll, but we should determine ahead of time if you are prepared.

## REQUIREMENTS AND GRADING

The requirements are:

- Full (*and punctual*) attendance.
- Three mathematical problem sets during the first 9 weeks of the semester
- Participation in each meeting of the class. The quality of your participation (and not simply the quantity) will be part of your grade.
- Short assignments and surveys, several of which need to be turned in (with strict deadlines to allow us to integrate them in preparation for class discussions. A few of these will be evaluated based on quality, most will simply be turned in to help prepare for the discussion that week. Analysis of your own belief-formation in some domain.
- Two oral presentations (and some accompanying bibliographies and slides), in which you'll be asked to read in more depth and lead the class discussion on one of the topics. One of these would be on psychological evidence on biases in reasoning, and the other summarizing and critiquing some research. A separate document giving examples of potential topics will also be supplied.
- One one-on-one meeting with Professor Rabin during the first half of the semester, and at least two one-on-one or small-group meetings for the whole semester.
- There will **not** be an exam in the course.

Attendance, participation, and punctual assignments are all full and serious requirements. But they should not come at the expense of physical and mental health. As things develop we will figure out how to handle the appropriate need for individual and group safety with the nature of this course that is so dependent on real-time interaction. You will of course be excused for unexpected emergencies or debilitating or contagious illnesses. Requests to be excused for other reasons must be discussed ahead of time with Professor Rabin, at the beginning of the semester or immediately when you learn about them. (And perhaps job interviews for which a company cannot provide a compelling reason for demanding a schedule that conflicts with attendance—except to have candidates prove they will be more devoted to the company than to learning, well-being, or civil behavior to others—is a bad sign about the company.)

The problem sets are meant as a key teaching tool and way of evaluating comprehension of the course material. They will include problems ranging in difficulty from moderately easy to quite hard. The problems that are meant to be hard aren't (duh) 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 from Bnaya or me in answering any problems you are struggling with long enough before due dates so that meeting will be convenient for us too, and so that you will have time to integrate this help into your analysis.

You are invited (and even encouraged) to work together on the problem sets, but you are not allowed to read others' answers from past or present problem sets, and should hand in solutions separately that reflect your own understanding. You should acknowledge collaborators and describe the extent of collaboration at the top of the relevant assignments. Directly copying someone else's work is not appropriate, and should be considered a violation of official and unofficial codes of ethics.

## **Course Grade:**

Of the requirements listed, the ones that will be evaluated for assigning grades are:

- 3 problem sets, in total: 55%
- Class participation in discussions: 20%
- Small-scale written assignments (some based on completion, some evaluated more critically): 20%
- Two critical reviews of lines of research, combined written preparation and primarily presenting material and leading class discussion: 30%

Note that the above percentages sum to 125%. We will reduce the contribution of two of these categories by 10 percentage points each and one by 5 percentage points, by whichever combination yields you the highest point total.

## **Classroom Interaction and Behavior**

Some principles of classroom engagement that are “merely” highly desirable—for your learning and for civility—in lecture courses, become crucial in a seminar course. This course is meant to be highly interactive. Even on “lecture days” it is meant to involve extensive input. And group discussions and participant presentations rely heavily on full engagement. So, really, you must be fully engaged. Please, really, use your computers for notetaking (and the occasional Googling of topics directly relevant to ongoing class discussion).

## **Pre-Class Preparation**

You will often be asked to complete assignments and surveys and otherwise prepare before coming to class. (This will include prior to the first class.)

## HANDOUTS, LECTURE NOTES, AND OFFICE HOURS

We intend to post lecture notes, talking points, and handouts (including problem sets) on <https://canvas.harvard.edu/courses/96741>.

### Professor Rabin's Office Hours

Professor Rabin will not hold drop-in office hours during the semester designated specifically for this course. But he will have abundant office hours. (The default for now is on zoom, but that we hope evolves quickly.) He has sign-up for half-hour slots throughout the semester available to you (as well as his advisees). Please see “Office Hours” on his home page for instructions (which you should follow!). All students **must** sign up at least once to meet with Professor Rabin by the end of Week 7 (i.e., before Spring Break) and **must sign up at least twice** by the end of the semester. (These are minimums—students can sign up for more than that.) Students can choose the topics for these meetings per their interests on any assignment or topic related to the course. We will also announce group “coffees”. **Attending one of these group “coffees” can count as your second mandatory meeting with Professor Rabin.** These two meetings are a minimum required, but you may use this office hours for any course-related reasons, or anything else, so please do sign up. Also, in many cases the meetings can be better in a group, so when you sign up and send the mandatory immediate follow-up email, you can indicate whether you'd be happy for other course participants to join.

### Bnaya's Office Hours

Bnaya will have office hours announced on canvas, typically centered around the formal material and problem sets. But it would be a mistake to treat him solely for this part of TFing. Keep in mind that (1) Bnaya is also very knowledgeable on much of the related material, and so is a good resource to talk to about the non-technical aspects of the course as well, and (2) you may also always sign up for “technical” help from Professor Rabin. We will both attempt to be available and accessible as much as possible, and the switch to the pure-sign-up system is primarily to increase access. However, that does take planning—and it doesn't serve our goals for sleep or for pedagogy to be available 24/7 right before problem sets are due (for instance). Please realistically plan ahead. The purpose of meetings related to the technical parts of the course is to explain and lead you to be able to solve things, not to give you the answers, so you would need to leave enough time after these meetings to integrate what you've learned. We can try to answer things by e-mail, but please keep in mind that many questions are not usefully answered over email, and certainly not with guarantees of immediate or detailed replies.

## What general topics will we explore?

We meet Wednesdays January 25 and April 26, except March 15.

Course topics, in approximate order, are:

### Conceptual Topics:

- Overview and Motivating Examples
  - What aspects of beliefs are we interested in?
- Biases in Statistical Reasoning, Evidence, Models, and Economic Implications
- How are beliefs measured?
- Inconsistent beliefs and the limits to (coherent) probabilistic beliefs
- Limited attention
- Motivated cognition: How is what we believe influenced by what we want to be true? How is it influenced by emotions?
- How well do we predict our own future preferences and behavior?
- How well do we remember and understand our own past preferences and behavior?
- Social Inference and Non-Inference:
  - What information do we extract from others' behaviors and stated beliefs?
  - What do we believe *about* others?
  - When and how do individuals and groups disagree?
- What are the group and societal implications of the distortions we explore?
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### Well, what do people believe about the world?

- Labor-market and Educational Beliefs
- Popular medical/nutritional beliefs from 10,000 BC to today
- What are family and friends getting wrong?
- What have you changed your mind about, and why?

### More information to Come

In addition to this course description, we will start post (ideally before the week of Tuesday, January 17) some additional material, such as initial readings and sample problems, that will help give a better sense of the course.

The official timeline for registration says January 19. In previous years students have explained, and this seems to be right, that because this course is by consent of the instructor, this deadline is not strict (because the penalty for missing registration is that it is no longer automatic admission, but is by the discretion of the instructor).