

# CHOICE

## PSYC2740/PPE3004

Instructor: Sudeep Bhatia ([bhatiasu@sas.upenn.edu](mailto:bhatiasu@sas.upenn.edu))

Senior TA: Feiyi Wang ([feiyiw@sas.upenn.edu](mailto:feiyiw@sas.upenn.edu))

Additional TAs:

Doae Kim ([doaekim@sas.upenn.edu](mailto:doaekim@sas.upenn.edu))

Leo Yuan ([leoyuan@sas.upenn.edu](mailto:leoyuan@sas.upenn.edu))

Andrew Yang ([akjyang@wharton.upenn.edu](mailto:akjyang@wharton.upenn.edu))

Time: 3:30pm-5pm

Location: Leidy Laboratories; Room 10

---

Overview: The choices that people make determine their lived experiences, their social, economic, and political realities, and their overall well-being. For this reason, the study of choice is of special interest across both the sciences and the humanities, and is a central focus of academic disciplines like psychology, economics, neuroscience, and philosophy. This course will introduce you to the interdisciplinary study of human choice behavior, and will examine in detail what we know about how people make choices, how observed choice patterns and mechanisms relate to those in animals and intelligent machines, how we can accurately predict and influence people's choices, and what our choices tell us about how we should organize societies, economies and our personal lives.

Structure and Content: The course is divided into eleven modules, with each module spanning one or more classes. The modules presented in the first two-thirds of the semester will focus on perspectives on choice from different disciplines. We will begin with *rationality*, exploring ideas from political philosophy and economics, particularly rational choice, utility maximization, and liberalism. From there, we will shift to the study of choice *behavior*, drawing on insights from psychology, marketing, and behavioral economics. This section will emphasize the ways in which behavior often violates principles of rationality, and particularly the malleability of choices. Next, we will examine the *mind*, using theories in cognitive science and computer science. These theories treat choice as the outcome of an information processing system and can explain some violations of rationality as the byproducts of an adaptive algorithm. Our discussion of cognition will naturally lead us to a module on the *brain*, in which we will focus on the neuroscience of choice, particularly the neural mechanisms involved in the processing, learning, and comparison of utilities. In our module on *machine*, we will connect these ideas to AI technologies like large language models, and, by doing so, better understand how intelligent machines make choices, and how such machine may also violate rationality.

From the brain and machine, we will expand our understanding to include **biology**, drawing on research on genetics, animal behavior, and ecology. Here we will also examine collective intelligence in animals, that is how complex decisions can emerge from the actions of smaller, less intelligent actors. This will lead us to the study of choice in the context of **society**, which will use insights from anthropology, sociology and social psychology to understand social determinants of choice. This section will also include a special presentation from Professor Apicella on social decision-making from an anthropological perspective. Toward the end of this part of the course, we will transition to existential and theological perspectives on choice, explore themes of decision-making in art, literature, and film, and, more generally, how choice gives our life **meaning**. We will conclude with a special presentation of Professor Bhatia's own academic research on the important choices that people face in their own lives.

Each module in the final third of the class will be focused on a specific topic in the study of choice, and we will explore this topic from different interdisciplinary perspectives. The first topic will be **risk**, and we will examine the statistics of risk-taking, risk in finance, economics, and gambling, the behavioral science of risky decision-making, and risk in film and literature. The next module will focus on **time**, and examine how people make decisions involving intertemporal tradeoffs. This discussion will draw on economic and behavioral perspectives on finance and economics, and will also include a discussion of addiction, self-control, and goal-based decision-making, as well as conceptions of the self and personal development over time. The course will conclude with a module on **prediction**, and present methods used in psychology and economics, as well as in machine learning and data science, for predicting people's choices.

The semester includes 28 days of classes, and the schedule for covering the above modules in these classes is below. Note that \* indicates special presentations that are not directly integrated into the module.

1. Jan 16: Introduction	12. Feb 25: Machine	21. Apr 03: Risk I
2. Jan 21: Rationality I	13. Feb 27: Biology I	22. Apr 08: Risk II
3. Jan 23: Rationality II	14. Mar 04: Biology II	23. Apr 10: Risk III
4. Jan 28: Behavior I	15. Mar 06: Society I	24. Apr 15: Time I
5. Jan 30: Behavior II	[spring break]	25. Apr 17: Time II
6. Feb 04: Behavior III		26. Apr 22: Prediction I
7. Feb 06: Mind I	16. Mar 18: Society II	27. Apr 24: Prediction II
8. Feb 11: Mind II	17. Mar 20: Society III*	28. Apr 29: <b>Exam 3</b>
9. Feb 13: Brain I	18. Mar 25: Meaning I	[reading days]
10. Feb 18: Brain II	19. Mar 27: Meaning II*	
11. Feb 20: <b>Exam 1</b>	20. Apr 01: <b>Exam 2</b>	<b>Optional make-up exam during exam period</b>

Lectures: Lectures for this class will be presented live on campus. They will also be recorded, and recordings will be made available to students with approved absences upon request. Requests for access to a course recording should be sent to Feiyi Wang.

Office Hours: Office hours with Professor Bhatia will be held on Zoom from 1pm-2pm on Tuesdays and 11am-noon on Thursdays. Zoom links can be found on Canvas. Requests for additional meeting slots should be sent to Feiyi Wang.

In-class Comprehension Quizzes: Students will be given in-class quizzes to test their understanding of the material. These will be administered through Poll Everywhere (which is integrated into Canvas), and will be graded for completion. Students are allowed to skip quizzes for one of the modules.

Reflection Assignments: Students will be given writing assignments in which they will be asked to apply the ideas discussed in each module to important choices they are facing in their own lives. These are to be submitted on Canvas, and will be graded for completion. Students are allowed to skip the reflection assignment for one of the modules.

Exams: There will be three non-cumulative exams that will take place in person, in class, during class time, and on paper. Students can choose to redo one of the three exams in a fourth (optional) make-up exam that will take place during the exam period at the end of the semester. There will be no other opportunities for makeup exams. All exams will be composed of a combination of short and long-response questions, which will be based on the lectures. Students will be given practice questions with solutions to help them prepare for the exams.

Grading: The three exams together count for 90% of the grade (30% per exam), the in-class comprehension quizzes count for 5% of the grade (0.5% per module), and the reflection assignments count for 5% of the grade (0.5% per module). Again, one of the eleven modules can be skipped for the in-class quizzes and writing assignments. Students also have the opportunity to take a make-up exam to replace their score on one of the three midterm exams, during the exam period. Final scores will be converted to letter grades, without rounding, based on the following mapping.

93%-100%: A	83-87%: B	73-77%: C	63-67%: D
90-93%: A-	80-83%: B-	70-73%: C-	60-63%: D-
87-90%: B+	77-80%: C+	67-70%: D+	0-60%: F