

In the modern world, people are faced with difficult decisions on an almost daily basis. From consumer purchases to college choices to romantic commitments to health care options to career paths, decisions must be made in the face of plentiful but incomplete information and uncertain outcomes. In this course, we will examine both how people should go about making decisions and how people do go about making decisions. We will see that there is often quite a substantial gap between what people should do and what people do do, and we will examine what, if anything, can be done to close that gap. The aim of the course is both to familiarize you with exciting contemporary research on judgment and decision making, and to give you tools that might help you to improve your own decision making.

What makes the study of judgment and decision making so interesting and exciting to me is that it studies basic psychological processes in a way that is extremely closely connected to real life application—both to personal life and to public policy. By studying how people formulate goals, determine values, gather and evaluate evidence, think about uncertainty, make choices, think about the results of those choices, and revise their goals and values, we will simultaneously (I hope) make ourselves more conscious of our own decision making processes so that we can improve upon them.

### Requirements

The course will include a midterm exam, a final exam, and a term paper (8 pages). The term paper assignment will be described in class. In addition, there will be frequent written assignments and exercises scattered throughout the course.

### Readings

There is one required text. Baron, J., Thinking and Deciding (Third Edition). New York, Cambridge University Press, 2000. There will also be assignments of primary source material available on Blackboard. Finally, there is a packet of readings from recent newspapers and magazines available for purchase at the Psychology office in Papazian Hall. The point of these readings is to illustrate the practical relevance of what we will be discussing. You will be asked to write short essays on this material, and we will discuss it in class.

### Contest

Related to the readings packet, I am holding a contest. When you see an article in a newspaper or magazine that you think is relevant to material in the course, submit to me a copy of the article. Along with the article itself, submit a brief written commentary that includes the following:

1. Summary of the article's main point(s)
2. Discussion of its relevance to course material
3. Discussion of errors or omissions in the article, that is, an account of how the article should have been written. I haven't decided what the prize will be, but it will be good.

My main criterion for evaluation will be an assessment of the thoughtfulness of your discussion rather than the appropriateness of the article.

### Class Format

Generally, the class will be lecture format. My preference is for interactive lectures, so I hope and expect that people will come to class prepared to make comments and ask questions about the material under discussion.

## **I. Introduction**

- A. What do we think about?
  - 1. Goals
  - 2. Beliefs
  - 3. Decisions
- B. A framework for thinking
- C. Thinking about goals
- D. Thinking about beliefs
- E. Studying thinking
- F. Normative aims
  - 1. Truth
  - 2. Effectiveness
- G. What it means to be “rational”
  - 1. Reason and emotion

### Reading

Baron, Chapter 1 (5-17); Chapter 2 (31-43); Chapter 3 (53-66)

Ariely, D. & Wertenbroch, K. (2002). Procrastination, deadlines, and performance: Self-control by precommitment. *Psychological Science*, 13, 219-224. [This is assigned for unit VII also, and you can find it in that folder on Blackboard]

### Assignments

- 1. Do the “Intuitive Thinking” survey.

## **II. Logical Thinking**

- A. Types of logic
- B. Difficulties in logical thinking
- C. Representing the problem
- D. The logic of hypothesis testing

### Reading

Baron, Chapter 4

Wason, P.C. & Johnson-Laird, P.N. (1972). Psychology of reasoning. Cambridge, MA: Harvard University Press. Chapters 13-15 (pp.171-201).

Evans, J. St. B. T., Over, D.E., & Manktelow, K.I. (1993). Reasoning, decision making, and rationality. Cognition, 49, 165-187 [read through page 178].

Dawson, E., Gilovich, T., & Regan, D.T. (2002). Motivated reasoning and performance on the Wason selection task. Personality and Social Psychology Bulletin, 28, 1379-1387.

### **III. Thinking About Probability**

- A. What is probability
- B. Basic principles of probability
- C. How much should evidence alter beliefs? Bayes' Theorem
- D. How accurate are probability judgments?
  - 1. Probabilities and frequencies
  - 2. Anchoring and adjustment
- E. The "Representativeness Heuristic"
  - 1. Base rates
  - 2. Conjunction fallacy
  - 3. Gambler's fallacy
- F. The "Availability Heuristic"

### **Reading**

Baron, Chapter 5 (93-114); Chapter 6

Eddy, D. (1982). Probabilistic reasoning in clinical medicine: Problems and opportunities. In D. Kahneman, P. Slovic, & A Tversky (Eds.) Judgment under uncertainty: Heuristics and biases (pp. 251-267). New York: Cambridge University Press.

Kahneman, D. & Tversky, A. (1973). On the psychology of prediction. Psychological Review, 80, 237-251.

Tversky, A. & Kahneman, D. (1982). Judgments of and by representativeness. In D. Kahneman, P. Slovic, & A Tversky (Eds.) Judgment under uncertainty: Heuristics and biases (pp. 84-98). New York: Cambridge University Press.

Ross, M. & Sicoly, F. (1979). Egocentric bias in availability and attribution. Journal of Personality and Social Psychology, 37, 322-336.

### **Assignment**

- 1. Do exercises on the handout. Show all your work.
- 2. Read the articles by Sally Satel and Patricia Williams ("Better Safe...?" and "Racial Prescriptions"). Write a 1-page essay defending or criticizing "racial profiling" based on these articles and on our discussion of Bayes Theorem.

#### **IV. Hypothesis Testing: Detecting Contingencies and Correlations**

- A. Role of hypothesis testing in science
- B. Role of hypothesis testing in daily life
- C. Confirmation and falsification
- D. Necessity and sufficiency
- E. Bias in hypothesis testing
  - 1. Biased gathering of evidence
  - 2. Biased evaluation of evidence
  - 3. Resistance to change
  - 4. “Myside” bias
  - 5. “Hindsight” bias
  - 5. Wishful thinking
  - 6. Bias about the self
- F. Role of counterfactual thinking
- G. What correlations are
  - 1. Continuous variables
  - 2. Dichotomous variables
- H. Correlations vs. causes
  - 1. Selection effects and treatment effects
- I. Importance of correlations in everyday life
- J. Correlations and the 2X2 table
- K. Clinical vs. actuarial prediction
- L. Appreciating randomness
  - 1. Regression to the mean
  - 2. Anchoring and adjustment

#### **Reading**

Baron, Chapter 7; Chapter 8; Chapter 9, pp. 195-203, 206-212.

Wason, P.C. & Johnson-Laird, P.N. (1972). Psychology of reasoning. Cambridge, MA: Harvard University Press. Chapter 16 (pp. 202-217).

Snyder, M. & Swann, W.B. (1978). Hypothesis testing processes in social interaction. Journal of Personality and Social Psychology, 36, 1202-1212.

Lord, C., Ross, L., & Lepper, M.R. (1979). Biased assimilation and attitude polarization: The effects of prior theories on subsequently considered evidence. Journal of Personality and Social Psychology, 37, 2098-2110.

Baron, Dawes, R. Faust, D., & Meehl, P. (1989). Clinical versus actuarial judgment. Science, 243, 1668-1674.

McCauley, C. (1991). Selection of National Science Foundation graduate fellows: A case study of psychologists failing to apply what they know about decision making. American Psychologist, 46, 1287-1291.

## Assignment

1. Recruit two friends and give them (separately) the Wason and Johnson-Laird rule discovery task. Record each of their “experiments,” when they made guesses, what the guesses were, what the relation was between the guesses and their previous “experiments,” and whether (and when) they guessed the rule. Follow the format used in the Wason and Johnson-Laird reading.
2. Read the Nunberg article and write a 1-page essay on it. Are the media biased? How does the technical literature bear on Goldberg’s hypothesis and on Nunberg’s critique of it?
3. Write a 1-page essay on the Patterson article on evidence-based medicine. What does he think is the relation between evidence based medicine and patient autonomy? What do you think of this relation?

## **V. Making Decisions: Choice, Uncertainty, and Mental Accounting**

- A. Normative theory of decision making
  1. Expected utility
  2. Tradeoffs
  3. Intertemporal utility
  4. Social utility (utilitarianism)
- B. Determinants of value
  1. Decision utility, experienced utility, remembered utility
  2. Mispredicting happiness
  3. Adaptation
  4. Role of emotion
- C. Prospect theory
  1. Objective and subjective probability
  2. Gains and losses
  3. Decision frames
  4. Endowment effects, sunk costs, regret
  5. Anchoring and adjustment
- D. Mental Accounting
  1. Prominence
  2. Evaluability
  3. Intransitivity
  4. Omission bias and opportunity costs
- E. The “affect” heuristic
- F. The costs and benefits of conscious deliberation

## Reading

Baron, Chapter 10; Chapter 11, Chapter 12

- Kahneman, D., Fredrickson, B.L., Schreiber, C.A., & Redelmeier, D. A. (1993). When more pain is preferred to less: Adding a better end. Psychological Science, *4*, 401-405.
- Schkade, D. & Kahneman, D. (1998). Does living in California make people happy? A focusing illusion in judgments of life satisfaction. Psychological Science, *9*, 340-346.
- Rottenstreich, Y. & Hsee, C.K. (2001). Money, kisses and electric shocks: On the affective psychology of risk. Psychological Science, *12*, 185-190.
- Kahneman, D. & Tversky, A. (1984). Choices, values, and frames. American Psychologist, *39*, 341-350.
- Brenner, L. , Rottenstreich, Y., & Sood, S. (1999). Comparison, grouping, and preference. Psychological Science, *10*, 225-229.
- Thaler, R. H. (1999). Mental accounting matters. Journal of Behavioral Decision Making, *12*, 183-206.
- Hsee, C.K. & Hastie, R. (2006). Decision and experience: Why don't we choose what makes us happy. Trends in Cognitive Sciences, *10*, 31-37.
- Dijksterhuis, A., Bos, M.W., Nordgren, L.F., & van Baaren, R.B. (2006). On making the right choice: The deliberation-without-attention effect. Science, *311*, 1005-1007.

## **VI. Making Decisions: Utility, Tradeoffs, and Moral Thinking**

- A. Decision analysis vs. cost-benefit analysis: Utility vs. money
- B. Cost-benefit analysis vs. cost-effectiveness analysis
- C. Contingent valuation
  - 1. WTP and WTA
  - 2. Scope insensitivity
- D. Multi-Attribute Utility Analysis (MAUT)
  - 1. Opportunity costs
- E. Rules, Tradeoffs, and Commensurability
- F. Utilitarianism
  - 1. Interpersonal comparison of utility
- G. Rights
  - 1. Lexicographic preferences
- H. Rule vs. act utilitarianism
  - 1. Second-order decisions
- I. Biases in moral thinking
- J. Moral reasoning vs. moral intuitions
- K. Moral reasoning and the affect heuristic: Psychic numbing

## Reading

Baron, Chapter 13 (pp.303-309, 327-330); Chapter 14, Chapter 16

Baron, J. (1986). Tradeoffs among reasons for action. Journal for the Theory of Social Behavior, 16, 173-195.

Haidt, J. (2001). The emotional dog and its rational tale: A social intuitionist model of moral judgment. Psychological Review, 108, 814-834.

Slovic, P. (in press). "If I look at the mass, I will never act": Psychic numbing and genocide. Decision Research.

## Assignment

1. Read the articles by Bivens, Pollan, Surowiecki, and two by Brownlee. Write 1-page essays on two of them that discusses how we should assess the costs and benefits of various forms of electric power, of meat production, of environmental hazards, or of early tumor detection.

## **VII. Making Decisions: Fairness and Justice**

A. Equity theory

B. Utilitarianism and fairness

1. Declining marginal utility
2. Incentive and deterrence
3. Social comparison and envy
4. Rights

C. Intuitions about fairness

1. Equality
2. Equity
3. Need
4. Maximizing efficiency
5. Punishment

D. Social dilemmas

1. Ultimatum game
2. Prisoners' dilemma
3. Trust

## Reading

Baron, Chapter 17, pp. 409-426; Chapter 18

Kahneman, D., Knetsch, J.L., & Thaler, R. (1986). Fairness as a constraint on profit seeking: Entitlements of the market. American Economic Review, 76, 728-741.

Frank, R.H., Gilovich, T., & Regan, D.T. (1993). Does studying economics inhibit cooperation? Journal of Economic Perspectives, 7, 159-171.

Frey, B.S. & Oberholzer-Gee, F. (1997). The cost of price incentives: An empirical analysis of motivation crowding out. American Economic Review, 87, 746-755.

### **VIII. Making Decisions: Current and Future Selves**

- A. Plans, policies, and self-control
- B. Reasons for sticking to or abandoning plans
- C. Biases
  - 1. Sunk costs, endowment effects and loss aversion
  - 2. Omission bias
  - 3. Risk aversion
  - 4. Regret aversion
- D. Temporal discounting and self-control
  - 1. Calculations vs. rules

#### Reading

Baron, Chapter 19

Loewenstein, G. (1996). Out of control: Visceral influences on behavior. Organizational Behavior and Human Decision Processes, 65, 272-292.

Ariely, D. & Wertenbroch, K. (2002). Procrastination, deadlines, and performance: Self-control by precommitment. Psychological Science, 13, 219-224.

Rozin, P. (1999). The process of moralization. Psychological Science, 10, 218-221.

#### Assignment

1. Read the articles by Cottle and Sunstein write a 1-page essay. What are the practical and moral issues involved in regulating fat content in foods. Should we do it? If so, under what circumstances? And how much risk can we tolerate in vaccines and/or pollutants? How should it be calculated? To what extent should the state have rules that protect people from harming themselves and others?

### **IX. Making Decisions: Analysis of Risk**

- A. Assessment of risk
  - 1. Availability
  - 2. Pseudocertainty
- B. Response to risk
  - 1. Prospect theory: Loss aversion and risk aversion
  - 2. Insurance
  - 3. Torts
- C. Intuitions about risk
  - 1. Known vs. unknown
  - 2. Voluntary vs. involuntary



3. Natural vs. artificial
4. Individual vs. statistical
5. Omission vs. commission

### Reading

Baron, Chapter 20

Slovic, P. (2000). What does it mean to know a cumulative risk? Adolescents' perceptions of short-term and long-term consequences of smoking. Journal of Behavioral Decision Making, 13, 259-266.

Viscusi, W.K. (2000). Comment: The perils of qualitative smoking risk measures. Journal of Behavioral Decision Making, 13, 267-271.

Slovic, P. (2000). Rejoinder: The perils of Viscusi's analysis of smoking risk decisions. Journal of Behavioral Decision Making, 13, 273-276.

Campos, P. (2003). Weighting game. The New Republic, January 13, 17-21.

### Assignment

1. Read the articles by Rosen, Easterbrook, Allen, and Gladwell. Write a 1-page essay on risk perception and/or risk compensation that applies what we know to the content of one or more of these articles.