11.S942 Behavior and Policy: Connections in Transportation
Department of Urban Studies and Planning, MIT, Spring 2014
W 5-8pm; 9-450; Credits: 12

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Office hour: Thursday 10-12noon, 9-549
Public: http://dusp.mit.edu/cdd/project/behavior-and-policies

Description
This course examines the behavioral foundation for policy design, using urban transportation as examples. We introduce multiple frameworks of understanding travel behavior, rational or irrational, contrasting the perspectives of classic economic theory with behavioral economics and social psychology, and suggest corresponding policy interventions: a behavior--theory--policy mapping. Then we present a spectrum of ten instruments for positively influencing behavior and improving welfare: from manipulating information and changing perceptions of time and space, to pricing and framing, to inducing emotions of pride and shame, exploiting peer pressure or enhancing self control and motivation, and to nudging and preference shaping. Most importantly the course challenges students 1) to critique, design, implement and interpret experiments that nudge travel behavior; and 2) to bring behavioral insights to creative design of transport polices, programs and plans—making them not only efficient and equitable but also simpler, consistent, transparent, acceptable, and adaptive to behavioral changes.

Recommended Books
• Daniel Kahneman (2011) Thinking, Fast and Slow
• Dan Ariely (2008) Predictably Irrational
• Eldar Shafir (2013) The Behavioral Foundations of Public Policy
• Elinor Ostrom (1990) Governing the Commons: The Evolution of Institutions for Collective Action

Student Role: Translation in Transportation
The course expects significant student contribution. Selected materials from students will be integrated into future years’ syllabus. In particular, I’ll challenge students to collect, critique, design, and implement behavioral experiments in transportation. Students will take active part in debates, dialogues and presentations in class.
## Schedule

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<tr>
<th>#</th>
<th>Date</th>
<th>Topics</th>
<th>Out</th>
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<td></td>
<td></td>
<td><strong>Part I: Behavior and Policy in a Nutshell</strong></td>
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<tr>
<td>1</td>
<td>02/05</td>
<td>Unreturned Cafeteria Trays: Multiple Frameworks of Behavior</td>
<td>1a</td>
<td>2/9</td>
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<td>2</td>
<td>02/12</td>
<td>Instruments for Changing Behavior</td>
<td>1b</td>
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<td>3</td>
<td>02/19</td>
<td>Measurement, Methods and Technology (Emile Bruneau)</td>
<td>1c</td>
<td>2/23</td>
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<td>4</td>
<td>02/26</td>
<td>Nudges and Nudging: From Behavior to Policy (Cass Sunstein)</td>
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<td><strong>Part II: Multiple Frameworks of Behaviors</strong></td>
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<td>5</td>
<td>03/05</td>
<td>Bounded Rationality and Choice Architecture</td>
<td>1e</td>
<td>3/9</td>
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<td>6</td>
<td>03/12</td>
<td>Prospect Theory, Psychology and Social Psychology</td>
<td>1f</td>
<td>3/16</td>
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<td>7</td>
<td>03/19</td>
<td>Economic Models and Extensions</td>
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<td>(Spring Break: Mar 24-28)</td>
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<td><strong>Part III: Ten Instruments for Behavioral Change</strong></td>
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<td>8</td>
<td>04/02</td>
<td>Time and Information (Zhan Guo)</td>
<td>2a</td>
<td>3/30</td>
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<td>9</td>
<td>04/09</td>
<td>Pricing vs. Nudging (Tim Baird)</td>
<td>2b</td>
<td>4/6</td>
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<td>10</td>
<td>04/16</td>
<td>Is Travel Social? (Andrew Salzberg)</td>
<td>2b</td>
<td>4/6</td>
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<td>11</td>
<td>04/23</td>
<td>Help People Help Themselves</td>
<td>3a</td>
<td>4/21</td>
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<td><strong>Part IV: From Behavior to Policy</strong></td>
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<td>12</td>
<td>04/30</td>
<td>Market Failure and How to Save the Planet (Brigitte Madrian)</td>
<td>3c</td>
<td>5/26</td>
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<td>13</td>
<td>05/07</td>
<td>Capstone: Managing Cars in China</td>
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<td>5/12</td>
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<td>14</td>
<td>05/14</td>
<td>Behavior Foundation of Public Policy</td>
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<td>Ends and Means: Happiness, Wellbeing and Strategy</td>
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### Guest speakers
- Emile Bruneau (Feb 19)
- Cass R. Sunstein (Feb 26)
- Zhan Guo (Apr 2)
- Tim Baird (Apr 9)
- Andrew Salzberg (Apr 16)
- Brigitte C. Madrian (Apr 30)
Classes

Part I: Behavior and Policy in a Nutshell
Class 1. Cafeteria Trays and Multiple Frameworks
  Unreturned Cafeteria Trays
  Multiple Framework of Behavior
Class 2. Instruments for Behavioral Change
Class 3. Measurement, Tools and Technology
  Measurement and Tools
  Neuroscience
Class 4. From Behavior to Policy
  Nudges and Nudging
  From Behavior to Policy
  Simpler: Policy Design and Evaluation

Part II: Multiple Frameworks of Behavior
Class 5. Bounded Rationality and Choice Architecture
  From Home Econ to Homo Sapien
  Predictably Irrational: Biases and Heuristics
  Choice Architecture
Class 6. Prospect Theory, Psychology and Social Psychology
  System 1 vs. System 2
  Prospect Theory; Frame of Reference; Anchoring; Default
  Theory of Planned Behaviour
  Tipping Point
Class 7. Economic Models and Extensions
  Economic Models and Extensions
  A Continuum of Decision Making
  Behavioral Science of Transportation

Part III: Ten Instruments for Behavioral Change
Class 8. Time and Information
  BC1: Travel Time: Perception and Utility
  BC2: Manipulating Information
Class 9. Pricing vs. Nudging
  BC3: Pricing and Psychology of Money
  BC4: Nudging Active Travel
Class 10. Is Travel Social?
  BC5: Social Norms, Peer Pressure and Social Network Analysis
  BC6: Can We Share?
  BC7: Shame and Pride: Social Image as a Motivation
Class 11. Help People Help Themselves
  BC8: Let People Try
  BC9: Motivations, Meaning, Procrastination and Self-Control
  BC10: Induce Emotion and Psychology of Persuasion
Part V: From Behavior to Policy

Class 12. Market Failure and How to Save the Planet
  Market Failure and Behavioral Economics
  Saving the Planet: Energy and Environment

Class 13. Managing Cars in China: Cap-stone Example
  Bidding to Drive
  Superficial Fairness
  Hybrid Model: Auction and Lottery
  A Fourth Model?
  Breaking the Status Quo: Strategy for Change

Class 14. Behavioral Foundation of Public Policy:
  Tragedy of the Commons and Elinor Ostrom
  To What End? Commuting Happiness and Wellbeing
  A Bit of Philosophy

Homework and Grading

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<th>Homework</th>
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<tr>
<td>Part 1: Six idea notes (two page each)</td>
<td>30%</td>
<td>Individual</td>
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<td>Best five: 6% * 5 = 30%</td>
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<td>Part 2: Two Nudges of Your Own</td>
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<td>Individual</td>
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<td>10% * 2 = 20%</td>
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<td>Part 3: Team Project</td>
<td>40%</td>
<td>Group</td>
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<td>a) Interim report: 10%</td>
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<td>b) Full report: 20%</td>
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<td>c) Revised report: 10%</td>
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<tr>
<td>Class Participation</td>
<td>10%</td>
<td>Individual</td>
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Part 1. Six Idea Notes

In each of the first six weeks, you will be asked to write a two-page idea note and comment on two students’ idea notes. You may choose to do any five of the six idea notes and grades will be based on the best five scores if you do six.

a. “Unreturned trays” in Transportation
   Read the unreturned cafeteria tray book and write a counterpart story in transportation.

b. One Instrument to Change Behavior or Reflection on MIT Transportation Showcase
   Name one non-traditional instrument (or a non-typical use of a traditional measure) and discuss its applications in transportation

c. One Idea for Sunstein
   Prepare 1 question and 1 idea for Prof. Sunstein to help evaluate policies.

d. One “Sub-optimal” Policy
   Identify one transportation policy or program (national or local) that disregards the
complexity of human behavior and discuss the consequence of such ignorance or neglect.

e. One Bias in Human Cognition
Name one bias in human cognition, explain what it is in layman language and offer 3 examples of its application in transportation.

f. One “Irrational” Behavior or a Revised Version of “Unreturned trays in transportation”
Identify one travel behavior that cannot be explained by the classical economic theories. Propose alternative theories that can be used for a better explanation.

Part 2. Two “Nudges” of your own
Design two behavior experiments that nudge people towards more sustainable travel behavior or help understand people’s behavioral decision. 5 pages for each nudge.

Part 3. Team Project
Students deliver the project as a team. Each team has three students including at least one engineer and one planner. The team will determine the project topics collectively with the guide of the instructor. There are three options you can choose from:

Option A: Behavioral Experiment
Implement one of the experiments in Part 2.

Option B: Policy Blunders and Enhancement
Identify one transportation policy or program (national or local) that disregard human behavior (not recognized or respected). Offer a full evaluation of the policy and recommend changes to improve the policy.

Deliverables for Options A and B
- 3a: Interim report (3000 words) + Presentation
- 3b: Full report (5000 words) + Presentation
- 3c: Revised report (5000 words)

Option C: Freakonomics for Transportation
One and only one team, with the winning proposal and Jinhua’s permission, may choose to compile all our stories from the Forum (1a-1f and 2 nudges) into a book of “Freakonomics for Transportation” as their term project.

Deliverables for Option C:
- 3a: Book proposal + Presentation
- 3b: Full manuscript of the book
- 3c: Revised manuscript of the book

Listeners
Listeners are welcome with instructor’s permission: to attend at least 90% of the classes and complete any two of the six idea notes and one of the two nudges.
Readings

Part I: Behavior and Policy in a Nutshell

Class 1. Cafeteria Trays and Multiple Frameworks
- Daniel Kahneman: Thinking, Fast and Slow, Introduction
- Dan Ariely, Predictably Irrational, Introduction
- Etheredge (1976) The case of the unreturned cafeteria trays: An Investigation based upon theories of motivation and human behavior

Class 2. Instruments for Behavioral Change

Class 3. Measurement, Tools and Technology (Emile Bruneau)
- Brian Nosek and Mahzarin Banaji, Implicit Attitude (7 pages) You may try the Implicit Association Test here https://implicit.harvard.edu/
- Dan Ariely, The Upside of Irrationality, Chapter 11 Lessons from our Irrationalities, Why we need to test everything

Class 4. From Behavior to Policy (Case Sunstein)

Part II: Multiple Frameworks of Behavior

Class 5. Bounded Rationality and Choice Architecture
- Richard Thaler and Cass Sunstein (2008) Nudge: Improving Decisions About Health, Wealth, and Happiness, Chapter 4 When do We Need a Nudge, Chapter 5 Choice Architecture
Class 6. Prospect Theory, Psychology and Social Psychology


Class 7. Economic Models and Extensions

- Walker and Ben-Akiva (2001) Generalized RUM
- Daniela McFadden (2007), The Behavioral Science of Transportation, Transport Policy

Part III: Ten Instruments for Behavioral Change

Class 8. Time and Information (Zhan Guo)

- Guo 2011 Mind the Map! Impact of Transit Maps on Travel Decisions in Public Transit Systems, Transportation Research Part A 45(7)

Class 9. Pricing vs. Nudging (Tim Baird)

- Amy Finkelstein, E-Z Tax: Tax Salience and Tax Rates

Class 10. Is Travel Social? (Andrew Salzberg)

- Zhao and Zhao (2013) Understanding Car Pride: Psychological Structure and Behavioral Implications
- Tom Vanderbilt (2008). Traffic, Chapter 4 Why Ants Don’t Get into Traffic Jams (and Humans Do)

Class 11. Help People Help Themselves

- Loewenstein, John and Volpp (2013) Using Decision Errors to Help People Help themselves in Eldar Shafir Chapter 21
- Abou-Zeid et al 2012 Happiness and travel mode switching: Findings from a Swiss public transportation experiment, Transport Policy 19 (1)
- Dan Ariely and Klaus Wertenbroch (2002), “Procrastination, Deadlines, and
Performance: Self-control by Precommitment.” Psychological Science, Vol. 13, No. 3
- Dan Ariely, Predictably Irrational, Chapter 6 The Influence of Arousal

Part V: From Behavior to Policy

Class 12. Market Failure (Brigitte Madrian)
- Brigitte Madrian (2013) Behavioural Economics and Public Policy
- Nudge, Chapter 12 Saving the Planet

Class 13. Managing Cars in China: Capstone Example
- Jinhua Zhao, Tracy Chen and David Block-Schachter (2014) Superficial Fairness of Beijing's Vehicle License Lottery Policy
- Jinhua Zhao and Drewry Wang (2014) Superficial Fairness of Beijing's Vehicle License Lottery Policy

Class 14. Ends, Means and Strategy
- Syllabus, Reading List, Lecture Notes
- Daniel Kahneman: Thinking, Fast and Slow, Part V. Two Selves
- Ly, Kim, Nina Mazar, Min Zhao and Dilip Soman (2013) A Practitioner’ Guide to Nudging

Most readings will be posted at Stellar.