

MOSCOW STATE INSTITUTE OF INTERNATIONAL RELATIONS
(MGIMO UNIVERSITY)

Cognitive Science and Decision Making

Fall 2021

Monday 10:35 – 11:55

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1. Course Overview

The course takes a comprehensive view of the neuroscience, cognitive psychology, and political science approaches towards decision making. The aim of the course is to introduce students to the principles of rational thinking and to increase awareness of the fundamental factors that bound human rationality.

First, we will study the constraints on *human cognitive capabilities* that lead to biased thinking and heuristic decision making. The neuroscience perspective will help us understand how the brain processes information, evaluates alternatives and computes the optimal decision (or the wrong ones). The cognitive psychology perspective will shed light on the role of personality, emotions, cognitive style and schemas in individual reasoning.

Second, we will analyze constraints in the *environment* that stem from risk and uncertainty, groupthink, time pressure, information deficit and noisy signalling. We will learn how to apply game-theoretic models and statistical tools to decrease errors in judgement, scenario planning and forecasting.

During the course, theoretical insights will be applied to the analysis of international political events and phenomena, as well as decisions by political leaders. Each topic will include practical tips on how to apply the knowledge outside the classroom and improve the quality of individual judgement and choices.

2. Learning outcomes

By the end of the course students are expected to:

- learn the principles of rational thinking and criteria of good judgement,
- understand the risks and complexity of decision making in the spheres of foreign policy and international politics,
- learn how to apply debiasing strategies to minimize the impact of cognitive illusions and environmental constraints on judgements and decision making,
- enlarge the toolbox of analytical techniques for assessing alternative decisions and future scenarios with the methods of formal logic and probabilistic reasoning.

3. Course requirements and grading

The weekly meeting will consist of a mixture of lecture, discussion, and group work. Students are required to complete one of the readings indicated by an asterisk (*) and bring a brief written summary to class every week (1 page). Summaries should be typed, Arial or Times New Roman 12, double spaced. Summaries may be collected for review without notification.

The total grade will be calculated as follows:

Attendance and participation: 20%

Homework: 20%

Test results and final group work: 60%

Midterm evaluation. On the 5th and the 10th weeks students will be given tests based on the reading assignments and discussions in the class. On the 15th week students will be given home assignments for the group work, the results of which will be discussed on the final week.

TEST EXAMPLE

1. What are the **mental shortcuts** that lighten the cognitive load of making decisions, but also increase chances of error?
 - a) neural circuits
 - b) heuristics
 - c) skills
2. According to the Prospect theory by Tversky and Kahneman, what behavior do people demonstrate in choices involving sure **losses**?
 - a) risk aversion
 - b) risk seeking
3. How do emotions of **anger and fear** influence risk perception by decision makers?
 - a) anger: perceive lower risk
 - b) anger: perceive higher risk
 - c) fear: perceive higher risk
 - d) fear: perceive lower risk
4. To what errors do seasoned professionals often fall prey when making judgements about political events, according to the 15-year study by Philip Tetlock? (multiple choice)
 - a) overconfidence
 - b) cognitive conservatism
 - c) uncertainty of hindsight
 - d) lack of confidence
 - e) cognitive flexibility
 - f) certainty of hindsight

Structure

Week 1. Introduction.

Introduction. Decision making studies as a cross-disciplinary field. The normative theory of decision making. The concept of bounded rationality, heuristics and biases. Two systems of thinking.

Kahneman, D. *Thinking Fast and Slow*, New York, NY: Farrar, Straus, and Giroux, 2011

Nisbett, R. *Mindware: Tools for Smart Thinking*, New York, NY: Farrar, Straus, and Giroux, 2015

Simon, H. A behavioral model of rational choice. *Quarterly Journal of Economics*, 1955, 69, pp.99–118

Ariely D. *Predictably Irrational: The Hidden Forces That Shape Our Decisions*. New York, NY: HarperCollins, 2008

Week 2. Mind and Brain

The process of thinking and decision making from the neuroscience perspective. The structure and functions of the brain. Information processing, representation and organization of knowledge. Categorization and schemes.

***Jervis, R. *How Statesmen Think: The Psychology of International Politics*, Princeton University Press, 2017**

Rangel, A. The Computation and Comparison of Value in Goal-Directed Choice (Ch.28) *Neuroeconomics: Decision Making and the Brain*, 2009,

Sternberg, R. *Cognitive Psychology*, 5th edition, Wadsworth, 2009, Chapter 2, 7,8

Glimcher P. et al. (ed.) *Neuroeconomics: Decision making and the Brain*, Elsevier Inc., 2009

Lau R. *Models of Decision-Making*, Oxford Handbook of Political Psychology, Oxford University Press, 2013

Levy J. *Political Psychology and Foreign Policy*, Oxford Handbook of Political Psychology, Oxford University Press, 2013

Eysenck, M. and Keane, M. *Cognitive Psychology, A Student Handbook*, 4th ed. 2005. Ch.17 Judgement and Decision Making, pp.488-522

Baron J. *Normative Models of Judgement and Decision Making*, Blackwell Handbook of Judgement and Decision Making, pp.19-36

Week 3. Emotions

The classical theory of basic emotions vs. the theory of constructed emotions. The impact of emotions on cognitive appraisal and goal activation. Antonio Damasio's somatic marker hypothesis and the positive role of emotions in decision-making.

***Damasio, A. Descartes' Error: Emotion, Reason and the Human Brain, New York: Putnam and Sons, 1996. Chapter 8**

Barrett, L. How Emotions Are Made: the secret life of the brain, 2017

Phelps, E. The Study of Emotions in Neuroeconomics. Chapter 16, Neuroeconomics: Decision making and the brain, 2009

Bechara, A., Damasio, H., Tranel, D. & Damasio, A. R. Deciding advantageously before knowing the advantageous strategy. *Science*, 1997, 275, 1293-1294.

Week 4. Emotional Reasoning

Unwanted effects of emotions on rational decision making and solutions that seek to minimize the emotional response. The psychology of emotions and politics.

***Bazerman, M. and Moore, M. Motivational and Emotional Influences on Decision Making, in *Judgement in Managerial Decision Making*. John Wiley and Sons, 7th ed. 2009, Ch.5**

[*Lerner, J. et al. Emotion and Decision Making, Annual Review of Psychology, 2015, 779-823](#)

Johnson, E. J., Tversky, A. Affect, generalization, and the perception of risk. *Journal of Personality and Social Psychology*, 1983, 45, 20–31.

Week 5. Stress.

The positive side of short-term stress and the downside of chronic stress. Stress, depression and anxiety disorders and their impact on decision-making. Defining stressors for decision makers: time pressure, threat, incomplete and conflicting information, rapidly changing scenarios, etc. The basics of stress management.

***Sapolsky, R. Why zebras don't get ulcers, An Updated Guide to Stress, Stress Related Diseases and Coping, 2004. Ch.1 and Ch.13**

Sapolsky, R. Behave: The Biology of Humans at Our Best and Worst, NY, 2017, Chapter 4, pp.94-128

Week 6. Fear and Aggression.

Fight or flight reaction, aggressive or avoidance behavior. Aggression in hierarchical settings: expression in dominant/high-ranking and low-ranking individuals, the phenomenon of displacement.. The influence of hormones on DM: cortisol, testosterone, oxytocin, serotonin, dopamine. The basics of anger management

***Sapolsky, R. Behave: The Biology of Humans at Our Best and Worst, Penguin Press, 2017.**

Marcus, G. The Psychology of Emotion and Politics, Oxford Handbook of Political Psychology, 2013, pp. 182-221

Eysenck, M. and Keane, M. Cognitive Psychology, A Student Handbook, 4th ed. 2005. Ch.18 Cognition and Emotion, pp.537-564

Week 7. Heuristics.

The statistical reasoning vs. heuristics. Framing, anchoring, availability, representativity biases. A.Tversky and D.Kahneman's research and its critique by G.Gigerenzer.

***Kahneman D. Thinking, fast and slow. New York, NY: Farrar, Straus, and Giroux. 2011. Part II. Heuristics and Biases. Part IV.**

Quattrone, G. and Tversky, A. Contrasting Rational and Psychological Analysis of Political Choice in *Political Psychology: Key Readings* (ed. by J.Lost and J.Sidanius), Psychology Press New York, 2004, pp.323-345

Gigerenzer, G. Fast and Frugal Heuristics: The Tools of Bounded Rationality, Blackwell Handbook of Judgement and Decision Making, 2004, pp.62-88

Gigerenzer, G. Gut Feeling: The Intelligence of Unconscious, Penguin Books, 2007

Tversky, A. and Kahneman, D. Availability: A heuristic for judging frequency and probability, *Cognitive psychology*, 1973, 5 (2), pp. 207–232.

Tversky, A. and Kahneman, D. Judgment under Uncertainty: Heuristics and Biases. *Science*, 1974, 185 (4157), pp. 1124–1131.

Tversky, A. and Kahneman, D. Rational Choice and the Framing of Decisions. *The Journal of Business*, 1980, Vol. 59, No. 4.

Week 8. Decision Making Under Risk and Uncertainty

The Prospect theory and decision making under risk. Ways of resolving and quantifying uncertainty. Psychological explanations of risk preference. Expected value and expected utility theories. The endowment effect.

***Jervis, R. *How Statesmen Think: The Psychology of International Politics*, Princeton University Press, 2017, Ch.3 Representativeness, Foreign Policy Judgements, and Theory-Driven Perceptions; Ch.4 Prospect Theory: The Political Implications of Loss Aversion**

Bazerman, M. and Moore, M. *Judgement in Managerial Decision Making*. John Wiley and Sons, 7th ed. 2009, Ch.3 Bounded awareness, Ch.4 Framing, pp.42-83

Weber E. and Eric J. Johnson. *Decisions Under Uncertainty: Psychological, Economic, and Neuroeconomic Explanations of Risk Preference*, Chapter 10, in *Neuroeconomics: Decision making and the brain*, 2009

Thaler, R., and Sunstein, C. *Nudge: Improving decisions about health, wealth, and happiness*. New York, NY: Penguin Group, 2008

Kahneman, D and Tversky, A. Prospect theory: An analysis of decision under risk, *Econometrica*, 47 (2), 1979, pp.263-291.

Week 9. Personality and Individual Differences in Decision Making.

A fourfold conception of personality: traits, motives, cognition and the social context (Winter). Measurements of decision making styles and problem solving skills. Explanatory styles: pessimistic vs. optimistic. The Five-factor personality theory: extraversion, openness, consciousness, agreeableness, neuroticism. Cognitive style and need for cognitive closure (Webster and Kruglanski). Impact of sex and age on DM.

***David G. Winter, Personality and Political Behaviour, Oxford Handbook of Political Psychology, OUP, 2013.**

Webster, D. and Kruglanski, A. Individual Differences in Need for Cognitive Closure, *Journal of Personality and Social Psychology*, 1994, 67(6), 1049-1062

Stanovich, K. and West, R. Individual differences in reasoning. Implications for the rationality debate? *Behavioral and brain sciences*, 23, 2000, pp.645-726

O'Sears, D., and Levy, S. *Childhood and Adult Political Development*, Oxford Handbook of Political Psychology, OUP, 2013. pp.60-110

Sapiro, V. *Theorizing Gender in Political Psychology Research*, Oxford Handbook of Political Psychology, OUP, 2003. pp. 601-636

Brown, R. The Authoritarian Personality and the Organization of Attitudes in *Political Psychology: Key Readings* (ed. by J.Lost and J.Sidanius), Psychology Press New York, 2004, pp.45-85

Bazerman, M. and Moore, M. *Judgement in Managerial Decision Making*. John Wiley and Sons, 7th ed. 2009, Ch.7 Fairness and Ethics. pp.113-135

Kruglanski, A. W. *The psychology of closed mindedness*. New York: Psychology Press, 2004

Week 10. Ethics and fairness

Ethics and morals in DM. Measuring social preferences: the dictator game, the ultimatum game, the third party punishment game. The correlation between empathy and moral reasoning. Empathic “mirror neurons”. The neurobiology of other-regarding punishment behavior.

***Joseph S. Jr. Nye, Do Morals Matter? Presidents and Foreign Policy from FDR to Trump, Oxford University Press, 2019. Chapter 2. What is a Moral Foreign Policy? Chapter 8. 21st century power shifts: Barack Hussein Obama and Donald John Trump**

Week 11. Groupthink

The impact of groupthink, social norms and culture on individual decision making. In-group and out-group biases. Nationalism and ethnic stereotypes. Psychology of groups in conflict.

***Robert Jervis, *How Statesmen Think: The Psychology of International Politics*, Princeton University Press, 2017. Ch.5 Signaling and perception. Projecting images and drawing inferences. Ch.9 Deterrence and Perception**

Taifel, H. and Turner, J. The Social Identity Theory of Intergroup Behavior, in *Political Psychology: Key Readings* (ed. by J.Lost and J.Sidanius), Psychology Press New York, 2004, pp.367-390

Sidanius, J. and Pratto, F. Social Dominance Theory: A New Synthesis. in *Political Psychology: Key Readings* (ed. by J.Lost and J.Sidanius), Psychology Press New York, 2004, pp.420-440

Staub, E. and Bar-Tal, D. Genocide, Mass Killing and Intractable Conflict: Roots, Evolution, Prevention, and Reconciliation, Oxford Handbook of Political Psychology, OUP, 2003, pp.710-754

Houghton, D. Political Psychology: Situations, Individuals, and Cases, Routledge, 2008, Ch.4, 6 and 13-14.

Week 12. Game Theory

Game theory. Optimal solutions in one-shot vs. strategic interactive games. Signaling and perception. The evolution of cooperation, trust and altruism from the perspective of game theory and evolutionary biology.

***Robert Axelrod; William D. Hamilton, The Evolution of Cooperation, *Science, New Series*, Vol. 211, No. 4489. (Mar. 27, 1981), pp. 1390-1396.**

Kydd, A. International Relations Theory: The Game Theoretic Approach, Cambridge University Press, 2015.

Kydd, A. Trust and Mistrust in International Relations. Princeton University Press, 2005.

Week 13. Expert judgement and decision-making.

Differences between how experts and novices solve problems. Common errors in judgments by professional political analysts. Forecast, scenario planning and assessment. Techniques to improve precision and accuracy of judgements.

***Tetlock, P. Correspondence and Coherence: Indicators of Good Judgement in World Politics, in *Thinking: Psychological Perspectives on Reasoning, Judgment and Decision Making*, edited by D.Hardman and L.Macchi, 2003, Ch.12 pp.233-250**

Mintz, A. and DeRouen, K. *Understanding Foreign Policy Decision Making*, Cambridge University Press, 2010.

Jeffrey A. Friedman, *War and Chance: Assessing Uncertainty in International Politics (Bridging the Gap)*, Oxford University Press, 2019

Friedman, J. A., Lerner, J. S., & Zeckhauser, R. Behavioral consequences of probabilistic precision: Experimental evidence from national security professionals. *International Organization*, 2017, 71, 803–826.

Philip Tetlock, *Correspondence and Coherence: Indicators of Good Judgement in World Politics*, Ch.12

Paul J. H. Schoemaker, *Forecasting and Scenario Planning: The Challenges of Uncertainty and Complexity*, *Blackwell Handbook of Judgement and Decision Making*, Blackwell Publishing 2004, pp.274-296

Fischhoff, B., Gonzalez, R. M., Lerner, J. S., & Small, D. A. Evolving judgments of terror risks: Foresight, hindsight, and emotion. *Journal of Experimental Psychology: Applied*, 11, 2005, pp.124–139.

Week 14. Decision making in Politics and Security

The role of intelligence, policymakers, bureaucracy in making political decisions.

*** Jervis, R. 1) Why Intelligence and Policymakers Clash 2) Why intelligence assessments failed in Iraq. The lessons learnt in *How Statesmen Think: The Psychology of International Politics*, Princeton University Press, 2017**

Report of the Joint Inquiry into the Terrorist Attacks of September 2001 by the House Permanent Select Committee on Intelligence and the Senate Select Committee on Intelligence

Report of the Select Committee on Intelligence on the U.S. Intelligence Community's Prewar Intelligence Assessments on Iraq

Week 15. Big data and decision making. Debiasing strategies

What is a data-driven and algorithmic-based decision-making? Emerging trends in big data analytics. Data management concepts and technologies. The importance of data visualization for decision makers. The use of big data for international conflict prevention and international development policies.

***Eli Berman, Joseph H. Felter, and Jacob N. Shapiro. Small Wars, Big Data: The Information Revolution in Modern Conflict, Princeton University Press, 2018**

[UN Global Pulse, Big Data for Development: Challenges and Opportunities 2012](#)

[Big Data for Development and Humanitarian Action: Towards Responsible Governance Global Pulse Privacy Advisory Group Meetings 2015 – 2016](#)

Nick Bostrom, Superintelligence: Paths, Dangers, Strategies, Oxford University Press, 2014

[Andrej Zwitter THE IMPACT OF BIG DATA On INTERNATIONAL AFFAIRS Clingendael Spectator, 2016](#)

Daniel Power Using 'Big Data' for analytics and decision support Journal of Decision Systems, Vol.23, 2014

Garry Kasparov, Deep Thinking: Where Machine Intelligence Ends and Human Creativity Begins, Public Affairs 2018

Week 16.

Debiasing strategies: summary of the course recommendations.

Group work and discussion.