BEHAVIORAL DECISION SCIENCE (BDS)

BDS 2005 - Fundamentals of Behavioral Decision Science (3 credits)
Introduction to the major scientific models of decision making and applications to real-life situations. Economic models highlighting optimal choices and psychological models highlighting decision making tendencies. 2005: Emphasis on individual decision making in non-strategic choice settings. Probabilistic reasoning and economic model of rationality. Violations of the rational choice model, and psychological, physiological, and statistical models that accommodate this behavior. Applications to social settings and longer periods of time. Common ethical dilemmas and making ethical choices as an individual. 2006: Individual decision making in interactive and strategic choice settings as well as group decision making. Simultaneous, sequential, dynamic, repeated, and incomplete information games. Preferences for fairness, reciprocity, and cultural differences in interactions. Limitations when making group decisions. Ethical reasoning and computational analysis of strategy. Applications to voting, negotiations, and cooperation.
Pathway Concept Area(s): 3 Reasoning in Social Sciences, 10 Ethical Reasoning
Instructional Contact Hours: (3 Lec, 3 Crd)

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Introduction to the major scientific models of decision making and applications to real-life situations. Economic models highlighting optimal choices and psychological models highlighting decision making tendencies. 2005: Emphasis on individual decision making in non-strategic choice settings. Probabilistic reasoning and economic model of rationality. Violations of the rational choice model, and psychological, physiological, and statistical models that accommodate this behavior. Applications to social settings and longer periods of time. Common ethical dilemmas and making ethical choices as an individual. 2006: Individual decision making in interactive and strategic choice settings as well as group decision making. Simultaneous, sequential, dynamic, repeated, and incomplete information games. Preferences for fairness, reciprocity, and cultural differences in interactions. Limitations when making group decisions. Ethical reasoning and computational analysis of strategy. Applications to voting, negotiations, and cooperation.
Prerequisite(s): BDS 2005
Pathway Concept Area(s): 3 Reasoning in Social Sciences, 10 Ethical Reasoning
Instructional Contact Hours: (3 Lec, 3 Crd)

BDS 3134 - Choice and Behavior (3 credits)
Theories of rational choice, utility, and revealed preference. Intertemporal decision problems and choice under uncertainty with applications to insurance and investments. Behavioral regularities and evidence of violations of rational choice theory. Behavioral models that accommodate this behavior. Applications of behavioral models to economic problems, ethical questions, policy, and organization design. Pre: Sophomore standing.
Prerequisite(s): ECON 2005 or BDS 2005
Pathway Concept Area(s): 3 Reasoning in Social Sciences, 10 Ethical Reasoning
Instructional Contact Hours: (3 Lec, 3 Crd)
Course Crosslist: ECON 3134

BDS 4184 - The Science of Giving (3 credits)
Overview of the science of giving, altruism, helping, cooperation, and prosocial behaviors and decision making. Exploration of the personality contextual, cognitive, and affective factors that move people to help others in need. Application of psychological and behavioral principles necessary to craft interventions such as nudges to increase giving with emphasis on public policy. Methodological issues related to laboratory and field experiments. Ethical considerations in persuasion and influence.
Prerequisite(s): PSYC 1094 or HD 3014 or SOC 3204
Instructional Contact Hours: (3 Lec, 3 Crd)
Course Crosslist: PSYC 4184

BDS 4194 - Predicting Social Behavior (3 credits)
Overview of the process of predicting human choices, preferences, and actions in social contexts. Applications of measurement theory to data preparation, formatting, and scaling. Implications of psychological biases for data transformation and cleaning. Theory-guided predictor variable selection and development. Applications of machine learning to social settings. Evaluating prediction quality, bias, and generalizability. Developing predictive models in software. Ethical and societal implications of predicting human behavior.
Prerequisite(s): (PSYC 1094 or ECON 3254) and (BIT 2405 or STAT 2004 or STAT 3604 or STAT 3005 or STAT 3615)
Pathway Concept Area(s): 5A Quant & Comp Thnk Adv., 10 Ethical Reasoning
Instructional Contact Hours: (3 Lec, 3 Crd)
Course Crosslist: PSYC 4194

BDS 4864 - Developing Behavioral Science Policies and Interventions (3 credits)
Senior-level capstone course to apply theories and models from behavioral decision science to real world problems on topics from education, organizations, health, crime, environment, and volunteerism. Utilize behavioral science theories, data and analytical frameworks from research papers to define and analyze problems or unintended consequences resulting from individual decision-making. Emphasis on identifying specific problems, formulating behavioral policies or interventions to improve performance, and designing experiments and randomized controlled trials to test their effectiveness.
Prerequisite(s): BDS 3134 or ECON 3134
Instructional Contact Hours: (3 Lec, 3 Crd)
Course Crosslist: ECON 4864