Decisions, Cognition, and the Climate Crisis

28–29 April, 2023

Scan for event program!

The Ohio State University
Center for Cognitive and Brain Sciences

Ohio State Energy Partners

Decision Sciences Collaborative

Venue

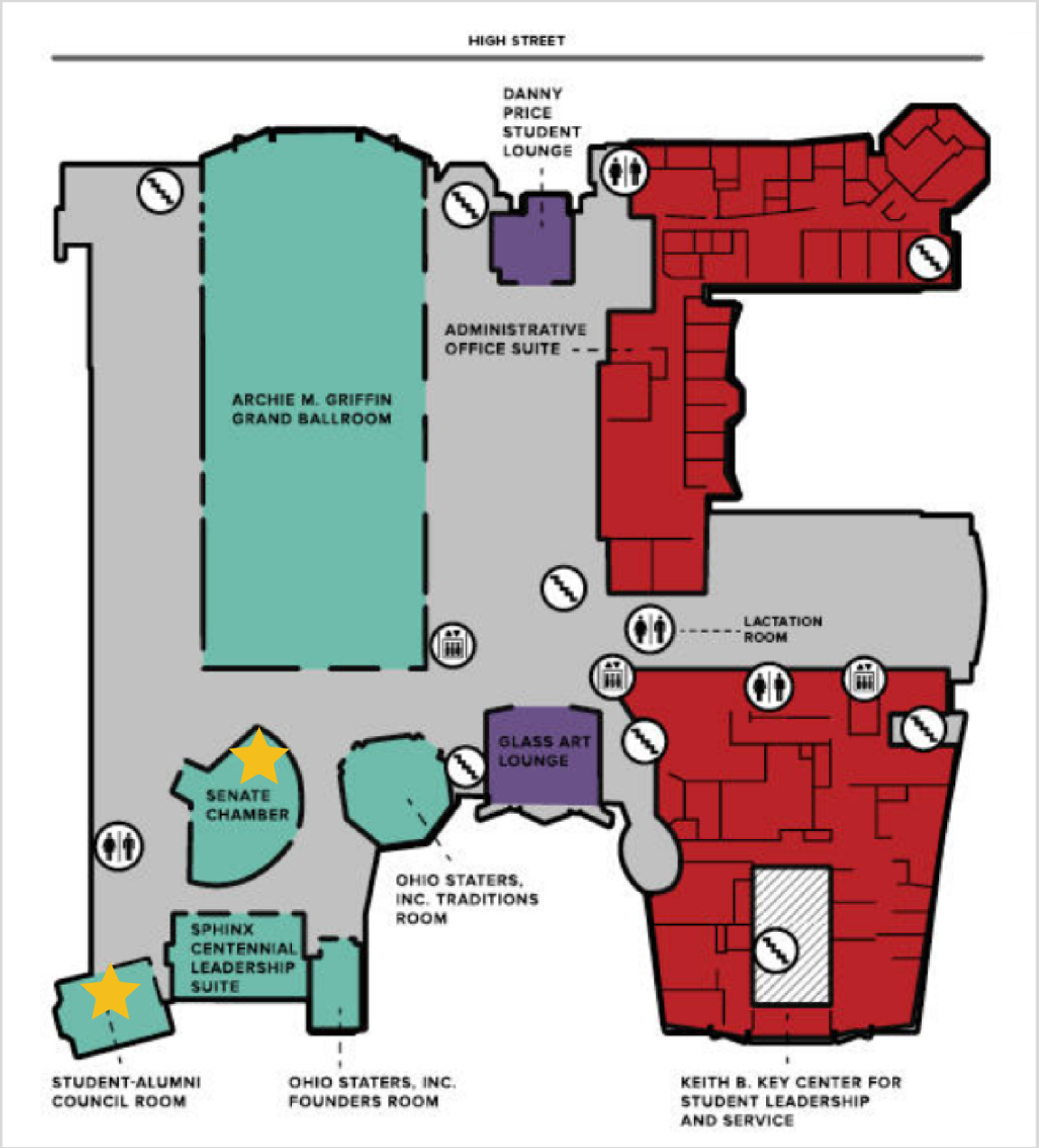
Meals will be served in the Student Alumni Council Room

Talks will be held in the Senate Chamber

(see starred locations below)

Rooms are located on the second floor of the Ohio Union

1739 N High St, Columbus, OH 43210



Friday
April 28

9:00 AM	**Continental Breakfast - Student Alumni Council Room**
10:00 AM	**Talk Session 1 - Senate Chamber**
10:00 AM	Dr. Nicole Sintov (Ohio State) - Interpersonal dynamics of sustainable decision-making
10:35 AM	Dr. Jiaying Zhao (U British Columbia) - How do we reinforce climate action?
11:10 AM	Dr. Katherine White (U British Columbia) - Political Ideology and Perceived Impact of Sustainable Behaviors
11:45 AM	Roundtable Discussion
12:20 PM	**Lunch - Student Alumni Council Room**
1:45 PM	**Talk Session 2 - Senate Chamber**
1:45 PM	Dr. Stephen Broomell (Purdue) - Global-Local Incompatibility: The Misperception of Reliability in Judgment Regarding Global Variables
2:20 PM	Dr. Marco Janssen (Arizona State) - Stimulating self-governance of the commons
2:55 PM	**Coffee Break - Student Alumni Council Room**
3:10 PM	**Talk Session 2 Continued - Senate Chamber**
3:10 PM	Dr. Shahzeen Attari (Indiana) - Fusing facts and feelings to motivate action on climate change
3:45 PM	Roundtable Discussion
4:15 PM	**End of Day One**

Saturday
April 29

9:00 AM	**Continental Breakfast - Student Alumni Council Room**
10:00 AM	**Talk Session 3 - Senate Chamber**
10:00 AM	Dr. Robyn Wilson (Ohio State) - Integrating heterogeneous climate adaptation decisions into simulation models
10:35 AM	Dr. Steven Franconeri (Northwestern) - Thinking with Data Visualizations, Fast and Slow
11:10 AM	Dr. Ellen Peters (Oregon) - Numeric tweets engage people with climate science
11:45 AM	**Lunch - Student Alumni Council Room**
1:00 PM	**Talk Session 4 - Senate Chamber**
1:00 PM	Dr. Leaf Van Boven (CU Boulder) - Naturalness Shapes Support for Sustainability Technology
1:35 PM	Roundtable Discussion
2:05 PM	**Closing Remarks - Senate Chamber**
2:15 PM	**End of Day Two**

Abstracts

Talk Session 1

Dr. Nicole Sintov (Ohio State) - Interpersonal dynamics of sustainable decision-making
Most studies investigating sustainable household behavior rely on paradigms that collect data from a single individual or examine household-level outcomes (e.g., utility bills). This perspective overlooks the interpersonal dynamics that often characterize such decisions. Specifically, in multi-occupant households, which account for 72% of U.S. households, many decisions, such as where to set the thermostat or whether to adopt solar panels, are not made independently by individuals, but rather by multiple people through the process of conversation. Understanding such interpersonal dynamics is critical to more accurately modeling sustainable consumer choices. This talk will cover several studies that demonstrate the importance of interpersonal dynamics in consumer decision-making related to home energy use, sustainability policy support, and residential solar panel adoption. Implications for intervention and outreach strategies will be discussed.

Dr. Jiaying Zhao (U British Columbia) - How do we reinforce climate action?
Humanity has a shrinking window to drastically reduce greenhouse gas emissions, yet climate action is severely lacking on the individual and policy levels. We argue that this is because behavioral interventions have largely neglected the basic principles of operant conditioning as one set of tools to promote collective climate action. In this talk, I'll describe an operant conditioning framework that uses reinforcement to encourage low-emission behaviors and punishment to discourage high-emission behaviors in the domains of transportation, food, waste, housing, and civic actions. This framework also helps explain positive and negative spillovers, and provides a recipe to design individual-level and system-level interventions to generate and sustain low-emission behaviors to help reach climate targets.

Dr. Katherine White (U British Columbia) - Political Ideology and Perceived Impact of Sustainable Behaviors
An important predictor of whether individuals will engage in sustainable behaviors is the extent to which they believe their actions will have a meaningful impact. This research makes the novel proposition that political ideology relates to the perceived impact of actions in the sustainability domain. Six studies demonstrate that, for the same behavior, liberals perceive their sustainable behaviors to be more impactful than conservatives, which is linked to their greater engagement in sustainable behaviors. We suggest that this belief stems from liberals' perception of a high prevalence of sustainable behaviors among the members of their political ingroup. Liberals' greater belief that those similar to them engage in sustainable behaviors leads them to perceive that their individual behaviors will have a greater impact on the environment than conservatives, which relates to their engagement in sustainable behaviors. Consistent with this mechanism, increasing individuals' perceptions of ingroup similarity augments ideological differences in perceived impact. Importantly, strengthening conservatives' perceptions of impact using collective impact framing using increases their engagement in sustainable behaviors. This work contributes to the literature on political ideology and behavioral change, highlighting effective ways to promote sustainable behavior across the political spectrum.

Abstracts

Talk Session 2

Dr. Stephen Broomell (Purdue) - Global-Local Incompatibility: The Misperception of Reliability in Judgment Regarding Global Variables.
A number of important decision domains, including global warming and natural hazards, are characterized by a global-local incompatibility. These domains involve variables that exist on a global scale, that cannot be observed by a single decision maker (DM), and require the integration of observations from locally available information cues. I present a new bifocal lens model that describes how the environmental structure can lead to a unique form of overconfidence when generalizing the reliability of the local environment to a global scale. When the local environment does not reliably reflect the global environment, they are incompatible. While local perspectives vary across DMs, global-local incompatibility can be understood using the structure of classical test theory to quantify (a) perceived reliability derived from the local environment and (b) the true reliability of the local environment. I model global-local incompatibility as the difference between the true and perceived reliability within different decision environments. Using a series of case studies and empirical surveys, I demonstrate the widespread utility of this framework for understanding perceptions of climate change and tornado threats, and conclude by discussing implications for cognitive-ecological theory, risk communication, and overconfidence.

Dr. Marco Janssen (Arizona State) - Stimulating self-governance of the commons
Empirical research shows that if groups self-govern their shared resources, the outcomes are more sustainable. Why is this, and how it stimulates self-governance? In this talk, I present experimental research to address those questions, focusing on the role of communication and procedural justice. Those insights are applied in using games as intervention tools to save groundwater in villages in rural India in a collaborative effort with various NGOs.

Dr. Shahzeen Attari (Indiana) - Fusing facts and feelings to motivate action on climate change
Solutions to climate change rest on science, technology, political will, and public support. In this talk I will discuss efforts from our lab over the past decade that aim to address problems related to human behavior, resource use, and climate change. Using methods that have strong links to environmental and cognitive science, we have investigated questions ranging from how people think about how much energy different appliances use, how to correct misperceptions using expert heuristics, what energy mix people want us to use in 2050. In this talk I will provide an overview of some of our main research findings and a taste of our current research projects. I would love to engage with you all on the path forward. Please bring questions and ideas.

Abstracts

Talk Session 3

Dr. Robyn Wilson (Ohio State) - Integrating heterogeneous climate adaptation decisions into simulation models

This talk will begin with an overview of some of the opportunities for cognitive and decision sciences when it comes to better engaging in climate-relevant research and conclude with an example of current research that aims to bridge this gap. Specifically, I will present results from a USDA-funded study focused on bringing more realistic assumptions about human behavior into simulation models (e.g., process-based watershed models, integrated assessment models). This line of research focuses on climate adaptation decisions among land managers in midwestern agriculture, identifying how insight into choice heterogeneity can improve forecasts of future land management decisions and associated impacts to the regional economy. I will also provide an example of planned field-based interventions that build on this work with an eye toward promoting climate adaptation among land managers. This work focuses on closing the value/intention-behavior gap through goal setting, planning and dynamic feedback with an eye toward behavioral persistence and promoting more resilient futures.

Dr. Steven Franconeri (Northwestern) - Thinking with Data Visualizations, Fast and Slow

You seek to communicate their findings to a non-expert audience in an intuitive way. A well-designed visualization can lead to massive improvements in how efficiently an audience understands those data patterns. I'll use interactive visual demonstrations to show the powerful capacity limits inherent to human perception of data visualizations. I'll then show how good designs beat those limits, across data depictions in media, classrooms, papers, and presentations, and how data interpretation can become biased by design tricks and motivated cognition.

Dr. Ellen Peters (Oregon) - Numeric tweets engage people with climate science

Experts sometimes say that the public can't handle numbers due to existing innumeracy and math anxiety. This account suggests that numeric evidence about consequences won't matter and is consistent with critics of the deficit model of science communication. However, other experts, such as proponents of medical shared decision making, point towards the need to respect people by providing information they value in forms they can understand. Studies in medicine, in fact, support the perceived value and benefits of providing numeric information about possible adverse events. Health professionals, however, are some of our most trusted messengers, and it is unclear whether people will engage more or less with numeric vs non-numeric messages about climate consequences.

In two studies using social-media data (Twitter and reddit) and one online experiment, we test these competing possibilities about engagement with messages about climate change in the presence vs absence of numeric consequences. Across all three studies, we found that people engage more with, trust messages more, and believe more that messages come from experts when those messages contain numbers, and especially numeric consequences, compared to those that do not contain them. Effects are moderated by individual differences in numeric competencies and ideology. I close with the notion that climate leaders should lead with evidence.

Abstracts

Talk Session 4

Dr. Leaf Van Boven (CU Boulder) - Naturalness Shapes Support for Sustainability Technology
This presentation considers public acceptance of sustainability technologies to address climate change. The central idea is that whether a technology is perceived as natural or artificial shapes public support or opposition towards it. The construct of naturalness is characterized by having properties found in nature, minimal human processing, and a sense of familiarity. The results of two national surveys support this hypothesis. The first survey examined the public's acceptance of sustainable food technology, including low carbon alternatives to meat like genetically modified plant-based meat and lab-cultivated meat. Results indicated that meat products perceived as more natural were perceived as beneficial and safe and were more widely supported. The second survey examined public acceptance of carbon removal technologies and low carbon energy alternatives to reduce carbon emissions. Once again, the results demonstrated that the more natural these technologies were perceived to be, the more they were considered beneficial and safe, and the more they enjoyed public support. Naturalness provides an important conceptual framework for comprehending public acceptance of sustainability technologies.