

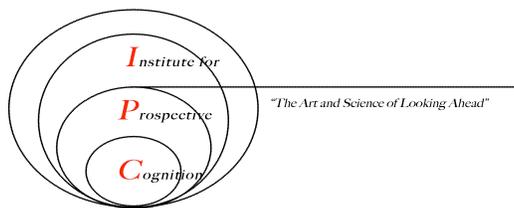


***Getting Ahead in Cognitive Science:
The Forward-looking Nature of Perception,
Action, and Cognition***
Friday, June 24th – Sunday, June 26th
Illinois State University
Normal, Illinois

FUNDING PROVIDED BY



THE
MINDPROJECT®



***Getting Ahead in Cognitive Science:
The Forward-looking Nature of Perception, Action, and Cognition***
Friday, June 24th – Sunday, June 26th
Illinois State University
Normal, Illinois

IPC Mission

The Institute for Prospective Cognition (IPC) is an international, interdisciplinary innovation devoted to the scholarly investigation of the forward-looking nature of human cognition and the means by which it emerges and expresses itself within individual consciousness, group communication and cultural sustainment. Central to this perspective is the belief that consciousness, communication and culture emerged and survived over the course of evolution precisely because of their inherently prospective nature. The multi-scale coupling that exists among these capacities—our individual ability to think ahead, our group ability to share the resultant abstract entities and organize around them into multi-agent bodies entailing future-referenced agendas, and our collective ability to embody these virtual agendas, via the arts and sciences, into the actual architecture of our environment—has given rise to an increasingly prospective world. The very environmental contexts in which we now develop, interact, and sustain ourselves have evolved with us into external embodiments of our inherently prospective nature.

As the human species continues to make the world more and more in its own image, individuals, groups and cultures are pressured to either come to grips with the increasingly abstract, almost virtual nature of the realities in which they live, or face the possibility of being left behind as the gap between those who are prepared, and those who are not, increases.

Given this increase in the prospective nature of our world, it is imperative we better understand our prospective abilities and the ways they are coupled with the larger scale prospective dynamics of groups and culture. The IPC is committed to this mission.

Conference Overview

The purpose of this workshop is to bring together a group of scholars whose research examines the prospective nature of perception, action, and cognition, and the ways in which these multi-scale processes are prospectively shaped and cultivated by the developmental, social, and cultural contexts in which they are embedded. This includes diverse research domains such as: the prospective nature of brain dynamics; the role of action-planning and affordance detection in prospective perception; the prospective dynamics inherent in temporal discounting; the nature of prospective memory; the contagious, prospective nature of human interaction; the prospective nature of personality; and the prospective nature of social-cultural systems such as educational practices, mental health systems, and performing arts traditions.

Schedule Overview

Friday, June 24th

7:00 Reception at Marriott

Saturday, June 25th – DeGarmo 551

8:00 – Continental breakfast

8:30 – Introductory remarks

9:00-10:30 – Talks

10:30 – Break

10:45-12:15 – Talks

12:15-2:00 – Catered Lunch & Break

2:00-3:30 – Talks

3:30 – Break

3:45-5:15 – Talks

7:00 – Banquet at Medici

Sunday, June 26th – DeGarmo 551

9:00 – Continental breakfast

9:30-11:00 – Talks

11:00 – Break

11:15-12:00 – Wrap-up discussion

12:00 – Conference ends

Detailed Schedule

Saturday, June 25th

8:00-8:30 – Continental Breakfast & Registration

8:30-9:00 – Introductory Remarks – Scott Jordan

Prospective Cognition: A Potentially Integrative Framework for Psychology

Developmental Session

9:00-9:30 – Jodie Plumert

9:30-9:45 – Alycia Hund

Social Session

9:45-10:15 – Andrew Monroe

10:15-10:30 – Glenn Reeder

10:30-10:45 – Break

Community Session

10:45-11:15 – Peter Ji

11:15-11:30 – Adena Myers

Memory Session

11:30-12:00 – Jennifer Coane

12:00-12:15 – Dawn McBride

12:15-2:00 – Catered Lunch

Cognition Development Session

2:00-2:30 – David Uttal

2:30-2:45 – Corinne Zimmerman and Steve Croker

Social Organization Session

2:45-3:15 – Ronnie Detrich

3:15-3:30 – Karla Doepke

3:30-3:45 – Break

Ecological Session

3:45-4:15 – Tony Chemero

4:15-4:30 – Jeff Wagman

Personality Session

4:30-5:00 – Daniel Cervone

5:00-5:15 – Sam Catanzaro

7:00 – Conference Banquet (cost extra)

Detailed Schedule (continued)**Sunday, June 26th**

9:00-9:30 – Continental Breakfast

Action Planning Session

9:30-10:00 – Ezequiel Morsella

10:00-10:15 – Scott Jordan

Temporal Discounting Session

10:15-10:45 – Shawn Charlton

10:45-11:00 – Tom Critchfield

11:00-11:15 – Break

11:15-12:00 – Wrap up Discussion – Scott Jordan

12:00 – Conference Ends

Abstracts

Opening Remarks: Prospective Cognition: A Potentially Integrative Framework for Psychology

J. Scott Jordan

Illinois State University

Anticipating When to Cross: Negotiating Traffic Coming from Opposing Directions in an Immersive, Interactive Bicycling Simulator

Jodie M. Plumert
The University of Iowa

Bicycle crashes are among the most common causes of severe injuries in late childhood and early adolescence. Motor vehicles are involved in approximately one-third of all bicycle-related brain injuries and in 90% of all fatalities resulting from bicycle crashes. A critical first step in developing programs to prevent collisions between child cyclists and motor vehicles is understanding why such collisions occur. Using an immersive, interactive bicycling simulator, my colleagues and I have examined how immature perceptual-motor functioning puts children at risk for car-bicycle collisions when crossing roads. A robust finding from our work is that 10- and 12-year-olds and adults choose the same size gaps to cross, but children end up with significantly less time to spare when they clear the path of the oncoming car. Our more recent research has revealed that a major contributor to this developmental difference is how children and adults synchronize self and object movement. In short, children have more difficulty than adults with precisely timing their movement relative to that of the cars, leading to a smaller safety margin when they cross through a traffic gap. This work has always used a highly simplified situation to assess how well children and adults make road-crossing decisions – the cars always travel at the same speed, come only from the left-hand side, and stay in the nearest lane. However, real-world crossing situations can be considerably more complex, requiring more complex prospective control over movement and more sophisticated perceptual-motor coordination. The work I will present looks at how 12- and 14-year-olds and adults approach a highly complex road-crossing problem – crossing two lanes of traffic coming from opposing directions. This work revealed that adolescents and adults preferred different strategies for crossing two lanes of traffic. Adults often used a rolling gap strategy in which they entered the near lane before the gap in the far lane had opened. Twelve and 14-year-olds often used an aligned gap strategy in which they entered the near lane when the gap in the far lane was already open. These strategies had important consequences for time left to spare between the rider and the approaching car in the near and far lanes. The aligned gap strategy produced more time to spare in the near lane than did the rolling gap strategy, but the rolling gap strategy produced more time to spare in the far lane than did the aligned gap strategy. Hence, the more challenging strategy to execute led to a greater final safety margin. These results will be discussed in terms of how the fit between individuals' capabilities and the task demands leads to different strategies for solving perceptual-motor problems.

Developmental Improvement in Executive Functioning During Middle Childhood: Processing and Coordinating Multiple Dimensions in the Service of Goal-directed Behavior

Alycia M. Hund
Illinois State University

Executive functioning (EF) is an umbrella term for goal-directed processes, including working memory, inhibition, and flexibility, among others. It is well established that EF improves rapidly during the preschool years (Garon et al., 2008). Development continues throughout middle childhood, though much less is known about this later trajectory (Best & Miller, 2010). Executive functioning has been linked to academic and social domains, including reading and mathematics achievement and understanding of self and others (Best et al., 2009). My goal was to specify the development of executive functioning (working memory, inhibition, flexibility) and theory of mind (second-order false belief and understanding of social intentions) in 7- through 11-year-old children. As predicted, executive functioning and theory of mind performance were related and increased with age across middle childhood. In particular, these findings highlight increasing abilities to process and coordinate multiple dimensions in the service of goal-directed behavior.

Mind and Morality: Motive Inferences Guide Moral Judgments

Andrew E. Monroe
Brown University

Moral judgment is an evaluative appraisal that is both cognitive and social in nature. It is grounded in the *cognitive* capacity to have a “theory of mind” — a system of concepts and processes that aid social perceivers in inferring mental states from behavior. Further, moral judgment has a fundamentally *social* role — regulating social behavior through the expression of blame and praise. The present research focuses on the cognitive process of making moral judgments and its implications for social perception. I will present several studies illustrating the importance of mental state inferences for moral judgment. These studies highlight the central role of motives for perceiving others (their traits and intentions) and for moral judgment. Moreover, these findings apply across a range of moral behaviors - from seriously harming another person to merely violating social norms of behavior.

Perceiving the Motives of Others

Glenn D. Reeder

Illinois State University

The conventional wisdom in social psychology is that social perceivers tend to ignore situational factors as they aim to attribute stable dispositional (or trait) characteristics to others. This traditional approach overlooks the fact that social perceivers are also interested in understanding the more temporary mind states of others. In particular, perceivers are interested in the motives (plans and goals) of others. The present research contrasts the traditional approach with a multiple inference model (MIM). MIM suggests that perceivers often pay close attention to situational factors in an effort to understand the mental states and motives of an agent. Perceivers attempt to determine if behavior was intentional and, if so, to assess the particular motives that prompted the behavior. In turn, perceived motives help to shape the trait inferences perceivers draw. In this talk, the model is applied to perceptions of Milgram's (1974) obedient participants.

Perspectives on being an ally to lesbian, gay, bisexual, and transgender communities

Peter Ji

University of Illinois at Chicago

The author provides a narrative of his development as a heterosexual ally of the lesbian, gay, bisexual and transgender (LGBT) community. The author uses those parts of his own experience that are consistent with components of existing ally identity development models to provide qualitative evidence regarding the validity of those models. The author discusses his initial concerns about lacking credibility and the qualifications to be an ally and goes on to discuss the role of affect and interpersonal components in ally identity development. The narrative will highlight the importance of interpersonal and active involvement in LGBT community events in forming his ally identity. The narrative will close with a brief discussion of the author's LGBT ally identity development theory and an academic course that was based on that theory.

Prospective Processes in Identity Development

Adena B. Meyers
Illinois State University

This presentation will focus on the prospective nature of identity development in general, and ally identity development in particular. The discussion will address theoretical issues in light of the qualitative data about LGBT ally identity development discussed by Peter Ji in the preceding presentation. These issues include the prospective nature of identity, and the roles of context and agency in developmental changes in identity over time. The following questions will guide the discussion: How do theories of identity and identity development contribute to an understanding of future-oriented aspects of perception, action, and cognition? To what extent do these theories model efforts on the part of the developing individual to proactively shape his or her identity? What are the roles of experience and environmental conditions in identity development? How do these processes play out in the development of specific pro-social or political identity elements such as that of LGBT ally?

The Prospective Nature of Activation Processes in Memory Retrieval

Jennifer H. Coane
Colby College

Semantic memory includes general knowledge, conceptual knowledge, and the mental lexicon. Estimates of the latter alone approximate 50,000 entries for the average adult. Hence, for this massive amount of information to be accessible, it must be organized and there must be an efficient search process. Among the models of semantic retrieval, spreading activation accounts propose that a forward-acting spread of activation through densely connected networks allows for retrieval of related and relevant information. Semantic priming effects, in which a related prime (e.g., airport) facilitates access to a related target (e.g., plane) compared to an unrelated prime (e.g., doll) are consistent with such models. Thus, primes prospectively activate related targets. Additional evidence of naturally occurring and context-independent activation, as well as priming for new associations (e.g., snakes-plane), as will be discussed, further support a forward acting preparatory process.

The Prospective Nature of Memory

Dawn M. McBride

Illinois State University

The nature of memory processing is inherently prospective in that many aspects of memory rely on our expectations of the world. For example, priming effects described by Jennifer Coane (see related abstract) show that one is “prepared for” particular types of stimuli. False memory effects based on semantic associations show that one fills in information in memories based on expected relationships between stimuli. The survival effect (a memory advantage for stimuli processed in a survival context) shows that evolutionary preparedness for survival is a key process in memory. Each of these effects (as will be discussed) is a robust finding in memory studies and together they illustrate that memory processing is inherently prospective by design. Finally, current research in prospective memory highlights the plan-full nature of memory.

Cognitive Development, Prospective Cognition, and STEM Education

David Uttal

Northwestern University

At least since Piaget, psychologists have stressed the importance of mental operations in cognitive development. An operation involves the mental manipulation of representations of actions or concepts. I will reinterpret the concept of mental operation from the perspective of prospective cognition, arguing that a mental operation is the ability to consciously manipulate information forward or backward in time. I will then apply this analysis to some significant developments in the emergence of the cognition of number and space. For example, the acquisition of the concept of integers involves the acquisition of a mental number line and the mental anticipation of movement along that line. Likewise, spatial representations often involve anticipating what an object, or set of objects, will look like after transformation. In the end, I will argue that mathematical and spatial thinking, prospective cognition, and STEM education are intertwined, and that considering these relations informs both theoretical and applied work.

The Development of Reasoning Skills: A Prospective Cognition Analysis

Steve Croker and Corinne Zimmerman

Illinois State University

Following David Uttal's discussion of the role mental operations in the development of spatial and mathematical thinking as tools used in service of prospective cognition, we apply a similar analysis to the development of reasoning. The acquisition of counterfactual reasoning skills, for example, involves the development of the ability to mentally rewind a given event and apply a different set of operations to the start state in order to arrive at a conclusion (e.g., Beck, Robinson, Carroll & Apperly, 2006). Similarly, scientific reasoning can be viewed as inherently prospective. Scientific reasoning skills such as hypothesis testing (e.g., Croker & Buchanan, 2011) require the development of the ability to perform mental operations on real or hypothesized past events in the service of producing controlled tests of predictions about future events.

The Social Context of Procedural Integrity

Ronnie Detrich

The Wing Institute

Across professional disciplines protocols exist to assure safety and benefit to individuals. Medical personnel are to wash their hands after each contact with another person; in business and industry, protocols assure that workers and the public are safe; and in education, there are protocols to assure that students benefit from instruction. Perplexingly, across disciplines, failure to comply with these protocols is very common even though the consequences for failing to do so are well established. Patients get new infections in hospitals, workers are injured and die in industry, and students fail to learn in education. Why are low levels of procedural integrity so common? Using educational interventions as an example, this paper will consider the social context in which these interventions occur and offer some data about how to influence compliance with protocols.

Research to Practice: Using Prospective Analysis to Inform Treatment Decisions

Karla Doepke
Illinois State University

While there is no definitive cause of autism spectrum disorders, professionals agree that ASDs are neurobiological disorders. As such, the importance of early intervention, capitalizing on the brain's plasticity has been touted. Indeed, research provides evidence of the positive impact of intensive early intervention in improving outcomes for children with ASD. Unfortunately, these research findings have not been translated into practice, as schools, individual service providers and families engaged in early intervention do not routinely use evidence-based strategies (Downs & Downs, 2010; Hume, Bellini & Pratt, 2005). Why would individuals obviously committed to early intervention choose to use ineffective or unproven strategies at a time so critical to a child's current and future trajectory of development? This paper will consider the social context in which these decisions are made and explore the use of prospective analysis to inform treatment decisions.

Radical Embodiment and Prospective Cognition

Tony Chemero

Franklin and Marshall College

In this talk, I describe what I call 'radical embodied cognitive science', an approach to explaining perception, action and cognition without invoking internal, mental representations. Radical embodied cognitive science combines the theoretical perspective of Gibsonian ecological psychology with the mathematical modeling tool of dynamical systems theory. Both ecological psychology and dynamical modeling imply that perception and cognition are prospective.

Nested Prospectivity in Perception-Action

Jeffrey B. Wagman
Illinois State University

Perception of possibilities for behavior is a necessarily prospective act. Such prospectivity is highlighted by the fact that behaviors are nested within behaviors over multiple spatial and temporal scales. It is well established that perception of possibilities for behavior depends on the action capabilities of the perceiver-actor and that perception of possibilities for behavior reflects changes in such action capabilities. I present a series of experiments investigating perception of possibilities for nested behaviors (behaviors that require a sequence of steps to achieve a goal). The results show that perception of possibilities for behavior not only reflect changes in action capabilities but also anticipated changes in action capabilities.

**The Forward-Looking Nature of Personality:
Social-Cognitive Bases of Personality Coherence**

**Daniel Cervone
University of Illinois at Chicago**

Research advances in personality science fall into two domains: the charting of inter-individual differences and the exploration of intra-individual structure and dynamics. This talk focuses on the latter by exploring social-cognitive bases of personality coherence. Theory and data will be presented to support the claim that personality functioning is forward-looking in two respects. Central to personality are (1) processes of self-regulation and self-control, through which people align current behavior with future aims and contingencies, and (2) appraisal processes, which can be understood as being grounded in the creation of mental models that represent possible future states of situations with which the individual must cope. The potential for cognitive-science models to advance theory in personality psychology will be explored.

Prospective Cognition in Personality Systems

Salvatore J. Catanzaro
Illinois State University

As social animals, humans need to anticipate the effects of their behaviors, and they also need to behave in patterns that can be anticipated, at least in part, by those around them. Interesting questions arise when taking prospective cognition seriously in personality, conceptualized as a dynamic system of cognitive-affective structures and processes that reflects the self-regulatory demands of complex social environments. Among these are: Have humans been selected for the tendency to exhibit stable situation-behavior profiles so we could more easily anticipate each others' patterns of behavior? How do prospective cognitive system(s) give rise to and support the emergence of apparently stable behavior patterns? If traits/dispositions are best understood as commonly exhibited patterns of a dynamic system that is inherently prospective and tuned by the physical and social environment, what are the implications for behavior genetics? For psychopathology? For psychotherapy?

The Circumscribed Role of Consciousness in the Prospective Brain

Ezequiel Morsella

San Francisco State University and University of California, San Francisco

There is a consensus that conscious states are associated with only a subset of all brain regions/processes and that they permit the integration of information/processes that would otherwise be independent. The study of *conscious conflict* (e.g., when one holds one's breath) has revealed much about the nature of these states. Conscious conflict is just one of many kinds of interactions in the nervous system. Other kinds of interactions/crosstalk, such as *afference binding* (e.g., intra- or inter-sensory interactions [e.g., the McGurk effect]) or interactions involving non-skeletal muscle effectors (e.g., integrations involving the pupillary reflex), can occur unconsciously. Similarly, motor control and basic stimulus-response associations (*efference binding*), such as pressing a button in response to a subliminal stimulus or inhaling reflexively, can occur unconsciously. Research reveals that conscious conflicts are special in that they involve the simultaneous activation of two conflicting streams of efference binding toward the *skeletal muscle output system* (e.g., signaling *inhale* and *do not inhale*). Such *efference binding* results in *integrated actions* such as holding one's breath, breathing faster for a reward, carrying a hot dish of food, performing the Stroop task, or suppressing socially-inappropriate behavior. Conscious states are not necessary for smooth muscle actions or skeletomotor actions that are *unintegrated*, such as those driven by a single stimulus-response (SIR) stream (e.g., withdrawing one's hand from a hot stove). From this standpoint (*Supramodular Interaction Theory*; Morsella, 2005), conscious states function above the level of the traditional Fodorian module to permit crosstalk among specialized, and often multi-modal, skeletomotor-related systems, as captured by the principle of *parallel responses into skeletal muscle* (PRISM). For example, regarding a process such as digestion, one is conscious only of those phases of the process requiring coordination with skeletal muscle plans (e.g., chewing). The PRISM acronym is conceptually related to the principle, for just as a prism can combine different colors to yield a single hue, conscious states cull simultaneously activated response tendencies to yield a single, adaptive skeletomotor action (e.g., holding one's breath). Thus, consciousness permits a form of crosstalk in the brain that is essential for *integrated action-goal selection*. I will review evidence for this new framework proposing that conscious states are required for integration, but for only certain kinds of integration in the nervous system. In addition, I will discuss how this framework reveals unique aspects of the forward-looking bias in the brain.

The Prospective Nature of Cooperative Action: Spatial Perception Changes when Planning with Another

**J. Scott Jordan, Andrew Kenning, and Cooper Cutting
Illinois State University**

The perceived vanishing point of a moving stimulus is displaced beyond the actual vanishing point. This forward displacement (FD) decreases with implied friction (i.e., the stimulus appears to move across a surface). The effect reverses when participants control stimulus movements (via right- and left-key presses). This reversal is consistent with economy-of-action (EOA) effects in which variables such as perceived pitch are influenced by the energy-demands implied by a stimulus (e.g., a steeper hill). The present talk presents experiments that reveal EOA effects when two participants control stimulus movements together, each having access to one of two control buttons. Specifically, FD increases across implied friction, regardless who controls the stimulus when it vanishes. Since participants are basically observers as the other participant controls the stimulus, the increase of FD during such observation indicates participants perceive the other-controlled stimulus movements in terms implied effort (i.e., EOA). In addition, FD is larger when it vanishes while the 'other' participant is in control of it. This self-other difference reveals the 'other' is prospectively present in the 'self's' action plans in terms of the *potential* disturbances the 'other' might produce during joint control.

Can I trust my future self? A temporal discounting primer

Shawn R. Charlton

University of Central Arkansas

Temporal discounting refers to the tendency to perceive the subjective value of delayed outcomes as less valuable than if they were to occur immediately. For example, consider your reaction upon receiving a \$100 bill. How does this compare to your reaction to the news that you will receive a \$100 prize in 6 months? While the absolute value of the prize is identical, the delayed outcome is perceived to be less valuable. One way to conceptualize the difference between these two reactions is that the *self* receives the immediate outcome, while the delayed prize is given not to the self, but to some *future self*. Within this framework, a choice between a smaller, immediate outcome and a later, larger outcome (a *self-control* choice) becomes a cooperative choice between the two selves. This primer will cover the fundamental elements of discounting, variables that influence discounting, and recent evidence tying discounting to working memory and ability to conceptualize both the future and the past.

Constrained Prospection

Thomas S. Critchfield
Illinois State University

Anticipation often is portrayed as an adaptive advantage to the organism. While adaptive prospection is of great scientific interest, it would be a mistake, in a nascent science of prospective cognition, to recapitulate the long and naive history in cognitive science of assuming that cognitive phenomena necessarily are ideal, rational, and/or internally consistent. Temporal discounting provides an example that is none of the above. Indeed, because of discounting, adaptive functioning often entails finding ways to override or short-circuit an organism's most instinctive prospective tendencies. To be complete, and to promote the bettering of the human condition, a science of prospective cognition must explore both the adaptive strengths and the structural limitations of anticipation.

Participant List

ISU Presenters

Sam Catanzaro
Illinois State University
catanzar@ilstu.edu

Thomas Critchfield
Illinois State University
tscritc@ilstu.edu

Steve Croker
Illinois State University
s.croker@ilstu.edu

Karla Doepke
Illinois State University
kdoepke@ilstu.edu

Alycia Hund
Illinois State University
amhund@ilstu.edu

J. Scott Jordan
Illinois State University
jsjorda@ilstu.edu

Dawn McBride
Illinois State University
dmmcbr@ilstu.edu

Adena Meyers
Illinois State University
abmeyer@ilstu.edu

Glenn Reeder
Illinois State University
gdreeder@ilstu.edu

Jeff Wagman
Illinois State University
jbwagma@ilstu.edu

Corinne Zimmerman
Illinois State University
czimmer@ilstu.edu

Invited Presenters

Daniel Cervone
University of Illinois at
Chicago
dcervone@uic.edu

Tony Chemero
Franklin and Marshall
College
tony.chemero@fandm.edu

Shawn Charlton
University of Central
Arkansas
scharlton@uca.edu

Jennifer Coane
Colby College
jhcoane@colby.edu

Ronnie Detrich
The Wing Institute
rdetrich@winginstitute.org

Peter Ji
University of Illinois at
Chicago
petji@uic.edu

Andrew Monroe
Brown University
Andrew_Monroe@brown.edu

Ezequiel Morsella
San Francisco State
University
morsella@sfsu.edu

Jodie Plumert
University of Iowa
Jodie-plumert@uiowa.edu

David Uttal
Northwestern University
duttal@northwestern.edu

Discussants

Drew Abney
Illinois State University
dhabney@ilstu.edu

David Anderson
Illinois State University
dlanders@ilstu.edu

Andrew Baker
Illinois State University
adbaker@ilstu.edu

Laura Berk
Illinois State University
leberk@ilstu.edu

Cooper Cutting
Illinois State University
jccutti@ilstu.edu

Julie Jung
Illinois State University
jmjung@ilstu.edu

Doug Schuweiler
Illinois State University
drschuw@ilstu.edu

Gregory Simpson
Illinois State University
gsimpso@ilstu.edu

Brandon Thomas
Illinois State University
bjthom2@ilstu.edu

David Vinson
Illinois State University
dwinso@ilstu.edu

Kristin Gallaway
Illinois State University
kcgalla@ilstu.edu

Brandy Hucke
Illinois State University
behucke@ilstu.edu

Uptown Normal Restaurants

Coffee Hound – 205 North St.

Coffeehouse – 114 Beaufort St. (Vegetarian meals)

Cosi – 138 Beaufort St.

Firehouse Pizza and Pub – 107 Beaufort St.

Garlic Press Market Café – 106 North St.

Jesse's Grill (in Marriott Hotel) – 201 Broadway Ave.

Jimmy Johns Sandwiches – 207 North St.

Maggie Miley's Irish Pub – 126 Beaufort St.

Medici – 120 North St.

Merry Ann's Diner (24 hour) – Corner of Fell and College

The Rock (Lebanese) – 203 North St.

