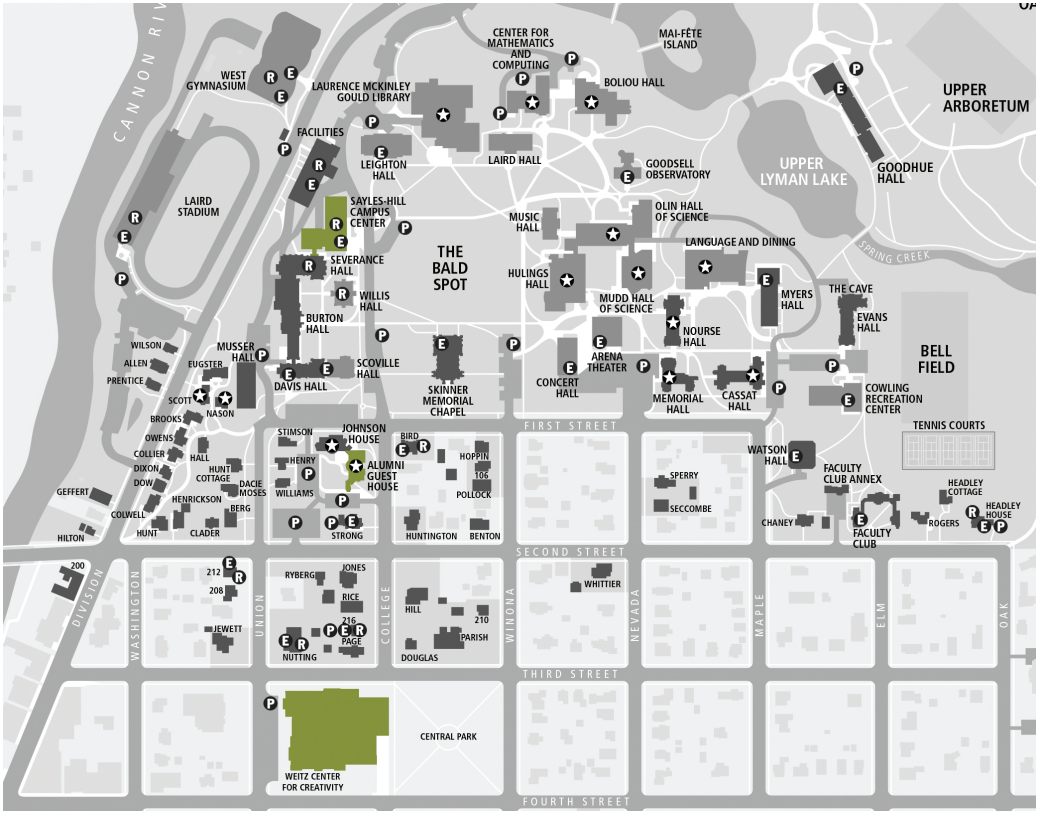
The Undergraduate
Neuroscience Conference
of the Upper Midwest

Hosted by
Carleton College, Northfield, MN
October 6, 2012

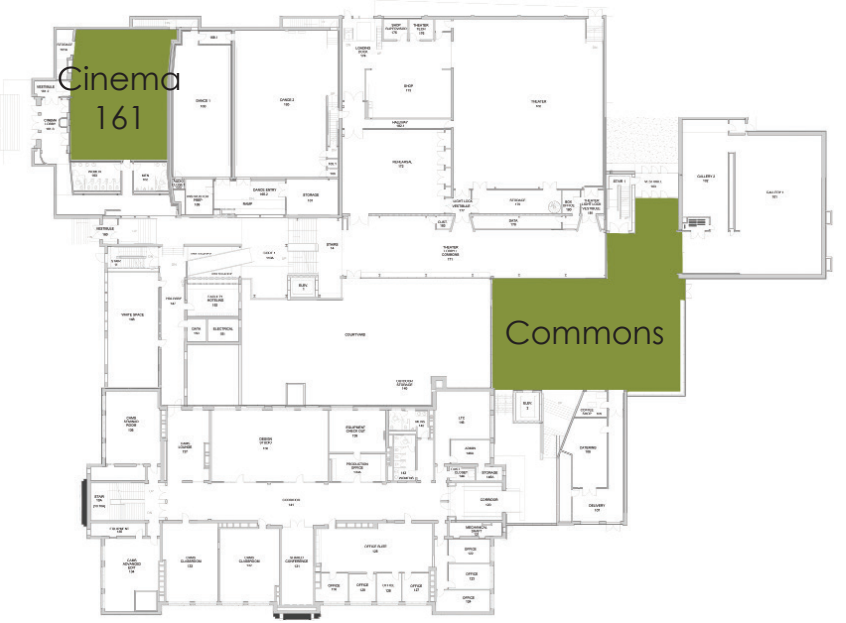
Campus Map



MidBrains

Weitz Center for Creativity (WCC) Floor Plans

1ST FLOOR



2ND FLOOR

General Information

PARKING lots are availalbe as shown on the Campus Map (page 2). Street parking is also available unless prohibited by signs.

REGISTRATION will be available from 8:00 - 10:00 am in the Weitz Center for Creativity Commons (WCC Floor Plans, 3).

LUNCH is scheduled from 12:15 - 1:15 pm following the Faculty Research Talks. The faculty lunch will be held in Alumni Guest House (see Campus Map, 2). For the first 100 students, free box lunches are available on the lunch table in the Weitz Commons (WCC Floor Plans, 3). Students can also walk downtown (2 blocks) or walk back to campus to purchase lunch at a cafeteria or Sayles-Hill Commons (Campus Map, 2).

POSTERS can be placed on easels after lunch, around 1:15 pm for the remainder of the conference. Student authors should stand next to their poster from 2:30 - 4:30 pm to answer questions.

STUDENT RESEARCH TALKS are scheduled to occur in WCC 230 from 2:30 - 3:30 pm. A faculty moderator will be present to introduce speakers and limit times. Students will have 12 minutes to present, with 3 minutes for questions/answers. Students should arrive at their room at 1:15 to have their PowerPoint presentations loaded from their memory drives to the laptop or teaching computer available.

Schedule of Events

8:00 - 10:00AM
Check-In/Registration
Weitz Center for Creativity (WCC)

9:00 - 10:00 AM
Keynote Address by Jeffrey Zacks, Washington University
"Flicker, move cut: Perceiving movies in the mind and brain"
WCC Cinema, 161
Sponsored by the Lufkinship Lectureship in Psychology

10:15 - 11:30 AM
Graduate School Presentation
Faculty from the Washington University, University of Iowa College of Medicine, University of Wisconsin-Madison, and the University of Minnesota will describe their graduate programs in the neurosciences. Information will be provided regarding program goals, research opportunities, admissions procedures, and financial aid.
WCC 236 - Larson Family Meeting Room

11:30 AM - 12:15 PM
Faculty Research Talks
WCC 230, 233, & 236 - Larson Family Meeting Room

12:15 - 1:15 PM
Lunch

1:30 - 2:15 PM
Graduate Student & Faculty Research Talks
WCC 230, 231, 233, & 236 - Larson Family Meeting Room

2:30 - 3:30 PM
Undergraduate Student Research Talks
WCC 230

2:30 - 4:30 PM
Poster Session, Graduate Program Information Tables, & Social
WCC 2nd Floor Balcony
Sponsored by Howard Hughes Medical Institute (HHMI)

Keynote Address

9 - 10 AM, WCC Cinema, 161

Sponsored by the Lufkinship Lectureship in Psychology

Flicker, move, cut:
Perceiving movies in the mind and brain

Jeffrey Zacks, Washington University

Introduction by Julie Neiworth, Carleton College

Jeffrey Zacks (BA, Yale; PhD Stanford) is an Associate Professor in the Department of Psychology and the Director of the Dynamic Cognition Lab at Washington University in St. Louis. His research focuses on event understanding and spatial cognition using converging cognitive neuroscience techniques. His lab uses functional neuroimaging and computational modeling to study healthy young adults, older adults, and neurological patients. Zacks will present research to uncover how we organize our different sensory and cognitive experiences while watching a movie or reading a story.

Graduate School Presentation

10:15 - 11:30 AM, WCC 236 - Larson Family Meeting Room

Moderators: Shelly Dickinson, *St. Olaf College*, and Sarah Meerts, *Carleton College*

1. Jeffrey Zacks, Professor, Dynamic Cognition Laboratory, Department of Psychology and Neuroscience Program, *Washington University*
2. Gloria Lee, Department of Internal Medicine, *University of Iowa College of Medicine*
3. Jerry Yin, Professor of Genetics and Neurology, *University of Wisconsin-Madison*
4. Mark Masino, Department of Neuroscience, *University of Minnesota*

Faculty Research Talks

11:30 AM - 12:15 PM, WCC 230, 233, & 236-Larson Family Meeting Room

WCC 230

1. John Cirrito, Assistant Professor, Neurology, Neurosciences Program, *Washington University:* Antidepressants make Alzheimer's disease plaques unhappy: Synaptic regulation of amyloid-beta in mice and humans
   Introduction by Jay Demas, *St. Olaf College*

WCC 233

2. Melissa Duff, Interdisciplinary Program in Neuroscience, Communication Science, and Disorders, *University of Iowa*: Hippocampal contributions to language use
   Introduction by Jeremy Loebach, *St. Olaf College*

WCC 236 - Larson Family Meeting Room

3. Matt Chafee, Department of Neuroscience, *University of Minnesota:* A cellular view of spatial cognition in primate neocortex
   Introduction by Eric Wiertelak, *Macalester College*

LUNCH

12:15 - 1:15 PM

Graduate Student & Faculty Research Talks

1:30 - 2:15 PM, WCC 230, 231, 233, & 236- Larson Family Meeting Room

WCC 230

1a. Cory Massey, *University of Iowa:* Breathing and sudden death: The vital role of serotonin

1b. Jake Kurczek, *University of Iowa*: Chameleons, social interaction and the brain: Frontal lobe contributions to mimicry

Introduction by Clark Ohnesorge, *Carleton College*

WCC 231

2. Bornali Kundu, Ph.D. Candidate, *Univeristy of Wisconsin - Madison:*

Introduction by Julie Neiworth, *Carleton College*

WCC 233

3. Jerry Yin, Professor of Genetics and Neurology, *University of Wisconsin-Madison:* Memory formation in *Drosophila*

Introduction by Larry Wichlinski, *Carleton College*

WCC 236 - Larson Family Meeting Room

4. Mark Masino, Department of Neuroscience, *University of Minnesota:* Dopamine modulation of spinal locomotor circuitry

Introduction by Shelly Dickinson, *St. Olaf College*

Undergraduate Student Research Talks

2:30 - 3:30 PM,WCC 230

Moderators: Gary Muir, *St. Olaf College*, and Jennifer Wolff, *Carleton College*

1. Kaitlin Snider and Jessica Joniaux, *University of Wisconsin - Eau Claire:* Efficiency of verbal and mechanical markers for training a difficult or simple behavior in pet dogs

2. Jillian Goetz, Greg Martin, and Jeff Trimarchi, *Iowa State University:* Identification of ganglion cell fate determinants through comparative single cell transcriptomics

3. Grace Sullivan, *Buena Vista University:* Oxytocin responses to volunteer work: Hormone reveals motives?

4. Terry Lund and Jeff Trimarchi, *Iowa State University:* Exploring mouse ganglion cell development at single cell resolution

Poster Session

2:30 - 4:30 PM, 2nd Weitz Balcony

Sponsored by Howard Hughes Medical Institute (HHMI)

Moderators: Sarah Meerts and Julia Strand, *Carleton College*

Homeostatic and Neuroendocrine Systems

101. Gabrielle Hayden, *Winona State University:* Neuroendocrine and behavioral responses to stress in hypothyroidism

102. Alexandra Isaacson and Sophia Ruff-Berganza, *University of Wisconsin - Eau Claire:* Yohimbine induced circadian clock resetting in mice

103. Rosemary Schairer, Priscilla Amofa, Kelly Anderson, Claire Cocroft, Molly Farry-Thorn, Elliot Johnson, Helen Strnad, and Sarah Meerts, *Carleton College:* Female rats' sexual experience must be paced to affect and alter paced mating behavior

104. Molly Farry-Thorn, Lisa Taxier, Elliot Johnson, Rosemary Schairer, Helen Strnad, Priscilla Amofa, and Sarah Meerts, *Carleton College:* Clitoral-vaginocervical lidocaine alters paced mating behavior in female rats

105. Elliot Johnson, Lisa Taxier, Helen Strnad, and Sarah Meerts, *Carleton College:* Female rats without ovarian hormone exposure during puberty demonstrate higher sexual receptivity after subprime hormone administration

106. Kelly Anderson, Claire Cocroft, Elliot Johnson, Helen Strnad, Lisa Taxier, and Sarah Meerts, *Carleton College:* Male preference is enhanced in female rats receiving clitoral-vaginocervical lidocaine prior to paced mating behavior

107. Amy Johnson, Mark Vanden Avond, Dillon Nemec, Courtney Nelson, Bailey Gomer, Krystal Reed, Jennifer Dobbe, Benjamin Kron, Joseph Vargo, Emily Hoida, Ryan Van Asten, and David Jewett, *St. Olaf College:* Effects of amphetamine in rats trained to discriminate between 22 and 2 hr food deprivation

Development and Genetics

108. Diane Fru, Kallie Weinand, Brock Pope, and Jeffrey Trimarchi, *Iowa State University:* Single cell transcriptomics of developing chicken retinal ganglion cells

109. Elizabeth Smith, *University of St. Thomas:* The role of brain derived neurotrophic factor and autocrine motility factor receptor in developmental reward-dependent learning within the orbitofrontal cortex

Mechanisms and Plasticity of Function

110. Whitney L. Hopfauf and Claire M. Olson, *Winona State University:* The role of type II astrocytes in learning and memory

111. Peter Wiese, *Augustana College:* Use of semi-stochastic process in modeling neural networks and synaptic plasticity

112. Sarah Schram, Ashley Fortress, and Karyn Frick, *University of Wisconsin - Milwaukee:* Canonical Wnt signaling is necessary for object recognition memory consolidation in male mice

113. Lydia Garlick and Maria Noterman, *Winona State University:* Memory impairment in BTBR linked to abnormal hippocampus and corpus callosum

114. Katherine A. Johnson, Anna Ingebretson, and Mikel Olson, *Concordia College:* Effect of chronic calpain inhibition on spatial working memory and cortactin expression

Techniques and Methodologies

115. Matthew A. Weber and Jennifer A. Aeling, *Winona State University:* A polyclonal anti-tyrosine hydroxylase assay to determine dopaminergic neurons

116. Samantha Clare, Pha Lor, and Kevin Crisp, *St. Olaf College:* Toward a method for wireless recording using implantable passive resonance probes

117. Richard A. Slivicki, *Winona State University:* Effects of anti-malarial prophylactic mefloquine on the light-dark test of anxiety

Nervous System Disorders and Treatments

118. Jennifer A. Aeling, Matthew A. Weber, and Michael Finnesgard, *Winona State University:* Reserpine treatment in mice is an incomplete model of Parkinson's disease

119. Maria Noterman and Lydia Garlick, *Winona State University:* Oxytocin reduces aggression in the BTBR mouse model of autism

120. Richard A. Slivicki and Thomas W. Bokma, *Winona State University:* Learning deficits in a mouse model of Alzheimer's disease

121. Courtney Loosbrock, M. Bryant, T. Lyden, K. Klycek, and A. O. Koob, *University of Wisconsin - River Falls:* Calcium wave induction and reduced apolipoprotein E after treatment of human cortical astrocytes with gamma-synuclein

122. Lacey Shiue, Charissa Quinlan, Elizabeth Quincer, Susan Larson, John Reber, and Krys Strand, *Concordia College:* Time course analysis of behavioural heterogeneity in MRL/MpJ lupus-prone and control mice

Sensory and Motor Function

123. Gabriela Bosmenier and Adam Hadro, *St. Olaf College:* Anesthesia disrupts head direction cell activity in freely-moving rats

124. Allie Koram, *University of St. Thomas:* Will the perception of light-weight food be altered when the weight of the containers increase?

125. Frederik Kamps, L. A. Wheaton, and J. C. Mizelle, *Macalester College:* Ischemic deafferentation alters the neural network for action understanding

126. Juan-Ita Effiom and Jeremy Loebach, *St. Olaf College:* A comparison of speech perception between normal hearing listeners and cochlear implant users

127. Chiamaka Isiguzo, Charles Whitmore, David Van Wylen, and Jay Demas, *St. Olaf College:* The impact of contrast on non-visual photoreceptors

128. Anthony Spano and K. R. Illig, *University of St. Thomas:* Projections from the anterior olfactory nucleus contact mitral cells in the olfactory bulb of Rattus norvegicus

Cognition, Emotion, and Motivation

129. Caitlin Kelly, *University of St. Thomas:* Energy drinks and risk taking behavior in college students

130. Dianna Amasino, *Macalester College:* The role of the ventromedial prefrontal cortex in social economic decision-making

131. Krystal Gotz and John Holden, *Winona State University:* Effect of repeated triadimefon doses on open field behavior of male C57BL/6J mice

132. Jane Burton, Sarah Phillips, and Carly Stork, *St. Olaf College:* The effects of gender and body-esteem on advertisement reactions

133. Brenna Bray, Andy Kleven, Stefan Lemke, and Melissa Songpitak, *St. Olaf College:* Nose-poking for Red Bull-ethanol: Developing an operant conditioning protocol for adolescent mice

134. Jordan Palacios, Caleb Hyde, and Evie Zack, *Carleton College:* Testing sensitivity to auditory patterns in tamarins

Presenter Index

Augustana College
Peter Wiese (111)

Buena Vista University
Grace Sullivan (3)

Carleton College
Kelly Anderson (106)
Molly Farry-Thorn (104)
Elliot Johnson (105)
Jordan Palacios (134)
Rosemary Schairer (103)
Lisa Taxier (104)

Concordia College
Katherine A. Johnson (114)
Elizabeth Quincer (122)
Charissa Quinlan (122)
Lacey Shiue (122)

Iowa State University
Diane Fru (108)
Jillian Goetz (2)
Terry Lund (4)

Macalester College
Dianna Amasino (130)
Frederik Kamps (125)

St. Olaf College
Gabriela Bosmenier (123)
Brenna Bray (133)
Jane Burton (132)
Samantha Clare (116)
Juan-Ita Effiom (126)
Adam Hadro (123)
Chiamaka Isiguzo (127)
Andy Kleven (133)
Stefan Lemke (133)

St. Olaf College Cont'd.
Pha Lor (116)
Sarah Phillips (132)
Melissa Songpitak (133)
Carly Stork (132)
Charles Whitmore (127)

University of St. Thomas
Caitlin Kelly (129)
Allie Koram (124)
Elizabeth Smith (109)
Anthony Spano (128)

University of Wisconsin - Eau Claire
Alexandra Isaacson (102)
Amy Johnson (107)
Dillon Nemec (107)
Kaitlin Snider (1)
Mark Vanden Avond (107)

University of Wisconsin - Milwaukee
Sarah Schram (112)

University of Wisconsin - River Falls
Courtney Loosbrock (121)

Winona State University
Jennifer A. Aeling (115, 118)
Thomas W. Bokma (120)
Michael Finnesgard (118)
Lydia Garlick (113, 119)
Krystal Gotz (131)
Gabrielle Hayden (101)
Whitney L. Hopfauf (110)
Maria Noterman (119)
Claire M. Olson (110)
Richard A. Slivicki (117, 120)
Matthew A. Weber (115, 118)