

Cassidy Wideman
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Education

PhD. Psychology: Neuroscience and Applied Cognitive Science-Specialization in Neuroscience **Expected 2022**

Investigating the neurobiological mechanisms underlying the destabilization of resistant object memories.

University of Guelph, Guelph, ON, Canada

Supervised by Dr. Boyer Winters

MSc. Psychology: Neuroscience and Applied Cognitive Science- Specialization in Neuroscience **2019**

Evidence that muscarinic receptor activation destabilizes object memories via a mechanism involving CaMKII and synaptic protein degradation

University of Guelph, Guelph, ON, Canada

Supervised by Dr. Boyer Winters

H.BSc. Brain Cognition Psychology + BSc Neuroscience Minor **2017**

University of Guelph, ON, Canada

Awards

Award	Granting Agency	Level	Date	Amount
<i>Council of Canadian Departments of Psychology Teaching Assistant Award</i>	University of Guelph-Psychology Department	Institutional	2020	N/A
<i>Ontario Graduate Scholarship – Declined</i>	Province of Ontario	Provincial	2019	\$15,000
<i>Alexander Graham Bell Canada Graduate Scholarship-Doctoral</i>	NSERC	National	2019	\$105,000
<i>NSERC GGSF Travel Grant</i>	NSERC	Institutional	2018	\$355
<i>NSERC CGS-M</i>	NSERC	National	2018	\$17,500
<i>Dean's Tri-council Scholarship</i>	University of Guelph	Institutional	2018	\$5000

<i>Graduate Tuition Scholarship</i>	University of Guelph	Institutional	2017	\$16,000
<i>CSAHS Dean's Scholarship</i>	University of Guelph	Institutional	2017	\$2500
<i>Undergraduate Entrance Scholarship</i>	University of Guelph	Institutional	2013	\$2000
<i>Deans List</i>	University of Guelph	Institutional	2014-Present	N/A

Journal Articles

- ***Wideman, C.E.**, *Jardine, K.H., *Huff, E., McGraw, S. & Winters, B.D. (2022) The evidence for and against reactivation-induced memory updating in humans and nonhuman animals. *Neuroscience and Biobehavioral Reviews*. 136.
- Wideman, C.E.**, Nguyen, J., Jeffries, S.D. & Winters, B.D. (2021) Fluctuating NMDA receptor subunit levels in perirhinal cortex related to their dynamic roles in object memory destabilization and reconsolidation. *International Journal of Molecular Science*. 22(1), 67.
- ***Wideman, C.E.**, *Jardine, K.H., ... Winters, B.D. (2020) Activation of cortical M₁ muscarinic receptors and related intracellular signaling for reactivation-induced object memory updating. *Scientific Reports*. 10(1).
- Mitchnick, K.A., Mendel, A., **Wideman, C.E.**, ... Choleris, E., MacLusky, N.J. & Winters, B.D. (2019) Dissociable involvement of estrogen receptors in perirhinal cortex-mediated object-place memory in male rats. *Psychoneuroendocrinology*. 107, 98-108.
- Wideman, C.E.**, Jardine, K.H. and Winters, B.D. (2018) Involvement of classical neurotransmitter systems in memory reconsolidation: focus on destabilization. *Neurobiology of Learning Memory*. 156, 68-79.
- Guenther, K.G., **Wideman, C.E.**, ... Parker, L.A. (2018) Conditioned aversive responses produced by delayed, but not immediate, exposure to cocaine and morphine in male Sprague-Dawley rats. *Psychopharmacology (Berl)*, 235(11), 3315-3327.
- ***Wideman, C.E.**, *Mitchnick, K.A., *Huff, A.E., ... McNaughton, B.L. and Winters, B.D. (2018) Development of novel tasks for studying view-invariant object recognition in rodents: sensitivity to scopolamine. *Behavioural Brain Research*, 344, 48-56.

*Denotes co-first author

Oral Conference Presentations

- Wideman, C.E.** ... and Winters, B.D. (2021) Acetylcholine: the key to unlocking memories for modification? *Guelph Neuroscience Day*. Guelph, ON, CA
- Wideman, C.E.** ... McNaughton, B.L. and Winters, B.D. (2017) Involvement of cholinergic muscarinic receptors in rats' performance in a novel test of view-invariant object recognition. *Guelph Neuroscience Day*, Guelph, ON, CA.

Conference Poster Presentations

- Wideman, C.E.**, Zakaria, J., Capistrano, J.D., Jardine, K.H. & Winters, B.D. (2021) Assessing the importance of acetylcholine signaling in perirhinal cortex for object memory destabilization using DREADDs in male and female mice. *Canadian Association for Neuroscience*.
- Wolter, M., Baidoo, N., Mitchnick, K., **Wideman, C.**, Winters, B. & Leri, F. (2021) Role of nicotinic receptors in the perirhinal cortex in memory modulation by nicotine, cocaine, and their conditioned stimuli. *Canadian Association for Neuroscience*.
- Zakaria, J., **Wideman, C.E.** & Winters, B.D. (2021) Using DREADDs to determine the importance of acetylcholine in perirhinal cortex for object memory destabilization. *Guelph Neuroscience Day*.
- Wideman, C.E.**, Nguyen, J., Jeffries, S.D. & Winters, B.D. (2021) Changes in levels of NMDA receptor subunits in perirhinal cortex relate to their dynamic roles in object memory destabilization and reconsolidation. *Society for Neuroscience Global Connectome*.
- Jardine, K.H., **Wideman, C.E.**,...Winters, B.D. (2021) Reactivation-based object memory updating in rodents is reliant on M1 muscarinic acetylcholine receptor signaling in perirhinal cortex. *Society for Neuroscience Global Connectome*.
- Wideman, C.E.**, Nguyen, J. & Winters, B.D. (2020) Differentiating the role of acetylcholine and glutamate for destabilizing resistant object memories. *Guelph Neuroscience Day*. Guelph, ON, Canada.
- Wideman, C.E.**,...Kalisch, B.E., Messer, W.S. & Winters, B.D. (2019) Evidence that muscarinic receptor activation destabilizes object memories via a mechanism involving CaMKII and synaptic protein degradation. *Molecular and Cellular Cognition Society*. Chicago, IL, USA.
- Jardine, K.H., **Wideman, C.E.**,...Winters, B.D. (2019) M₁ muscarinic receptor activity is necessary for retrieval-induced object memory updating: Evidence from a newly developed memory modification task for rats. *Molecular and Cellular Cognition Society*. Chicago, IL, USA.
- Wideman, C.E.**,...Kalisch, B.E., Messer, W.S. & Winters, B.D. (2019) Evidence that muscarinic receptor activation destabilizes object memories via a mechanism involving CaMKII and synaptic protein degradation. *Society for Neuroscience*. Chicago, IL, USA.
- Jardine, K.H., **Wideman, C.E.**,...Winters, B.D. (2019) M₁ muscarinic receptor activity is necessary for retrieval-induced object memory updating: Evidence from a newly developed memory modification task for rats. *Society for Neuroscience*. Chicago, IL, USA.
- Wideman, C.E.**,...Kalisch, B.E., Messer, W.S. & Winters, B.D. (2019) Investigating the role of proteasome-mediated synaptic protein degradation underlying novelty-induced object

- memory destabilization in the perirhinal cortex. *Canadian Association for Neuroscience*. Toronto, ON, CA.
- Jardine, K.H., **Wideman, C.E.**...Winters, B.D. (2019) Cholinergic system involvement in reactivation-induced object memory updating in a newly developed memory modification task. *Canadian Association for Neuroscience*. Toronto, ON, CA.
- Guenther, K.G., **Wideman, C.E.**...Parker, L.A. (2019) Conditioned gaping produced by delayed, but not immediate, exposure to cocaine in rats. *Southern Ontario Neuroscience Association*. Windsor, ON, CA.
- Thayalan, V., **Wideman, C.E.**...Kalisch, B.E., Winters, B.D. (2019) Investigating the role of the ubiquitin proteasome system in synaptic protein degradation underlying novelty-induced object memory destabilization in rats. *Southern Ontario Neuroscience Association*. Windsor, ON, CA.
- Jardine, K.H., **Wideman, C.E.**...Winters, B.D. (2019) Investigating the role of the cholinergic system for reactivation-induced object memory updating in a new memory modification task for rats. *Southern Ontario Neuroscience Association*. Windsor, ON, CA.
- Jardine, K.H., **Wideman, C.E.**...Winters, B.D. (2019) Muscarinic acetylcholine receptors involvement in reactivation-induced object memory updates in a new memory modification task for rats. *Guelph Neuroscience Day*, Guelph, ON, CA
- Guenther, K.G., **Wideman, C.E.**...Parker, L.A. (2019) Conditioned gaping produced by delayed, but not immediate, exposure to cocaine in rats. *Guelph Neuroscience Day*, Guelph, ON, CA.
- Wideman, C.E.**...Kalisch, B.E., Winters, B.D. (2019) Investigation of the role of CaMKII in rat perirhinal cortex for novelty-induced object memory destabilization: Linking M₁ muscarinic receptors to the ubiquitin proteasome system. *Guelph Neuroscience Day*, Guelph, ON, CA.
- Guenther, K.G., **Wideman, C.E.**...Parker, L.A. (2018) Conditioned gaping produced by delayed, but not immediate, exposure to cocaine in rats. *Society for Neuroscience*, San Diego, CA, USA.
- Wideman, C.E.** ... Winters, B.D. (2018) A novel task for studying reconsolidation-related memory updating in rats: a role for muscarinic receptors. *International Behavioural Neuroscience Society*, Boca Raton, FL, USA.
- Wideman, C.E.**.... Winters, B.D. (2018) A novel task for studying reconsolidation-related memory updating in rats: a role for muscarinic receptors. *Southern Ontario Neuroscience Association*, Guelph, ON, CA.
- Guenther, K.G., **Wideman, C.E.**... Parker, L.A. (2018) Conditioned gaping produced by delayed, but not immediate, exposure to cocaine in rats. *Southern Ontario Neuroscience Association*, Guelph, ON, CA.
- Wideman, C.E.** ... McNaughton, B.L. and Winters, B.D. (2017) Involvement of cholinergic muscarinic receptors in rats' performance in a novel test of view-invariant object recognition. *Southern Ontario Neuroscience Association*, St. Catharines, ON, CA.

Peer Reviewing Activities	
Invited Reviewer – Behavioural Brain Research	2021

Research Experience	
Dr. Boyer Winters	
University of Guelph, Graduate and Undergraduate Research Supervisor	2015-Present
<ul style="list-style-type: none"> • Intracranial surgical cannula implantation (rat and mouse) • Intracranial AVV infusion surgery (mouse) • Intracranial micro-infusions (rat) • Transcardial perfusions (rat and mouse) • Brain slicing and staining for histology • Brain tissue extraction (rat and mouse) • Object recognition (rat and mouse) <ul style="list-style-type: none"> ▪ Spontaneous object recognition task ▪ View invariant object recognition (VIOR; assisted with development) ▪ Post-reactivation memory modification (PROMM; assisted with development) ▪ Object in place • Auditory fear conditioning 	
Dr. Tim Bussey	2019-Present
University of Western Ontario, PhD practicum	
<ul style="list-style-type: none"> • Fibre photometry 	
Dr. Bettina Kalisch	2018
University of Guelph, Collaborator	
<ul style="list-style-type: none"> • Proteasome Activity Assays 	
Dr. Neil MacLusky	2017-Present
University of Guelph, Collaborator	
<ul style="list-style-type: none"> • Western Blots 	
Dr. Linda Parker	
University of Guelph, Undergraduate Research Supervisor	2017
<ul style="list-style-type: none"> • Taste reactivity and taste aversion 	

Relevant Work Experience	
<u>Paid</u>	
Sessional Lecturer	2022
University of Guelph	Guelph, Ontario
<ul style="list-style-type: none"> • Instructor for PSYC*3410 Behavioural Neuroscience II 	

- Prepared and delivered biweekly lectures, both in person and virtually
- Prepared examinations
- Prepared and taught TAs sheep brain neuroanatomy for weekly neuroanatomy labs

Medical Writer

2019-Present

SBW Medical Writing Inc

Guelph, Ontario

- Develop global value dossiers, manuscripts, clinical summary tables, and slide decks for global pharmaceutical and medical device companies.
- I have experience working across a variety of therapeutic areas including dermatology (burn injuries), gastroenterology (gastrointestinal oncology), nephrology (chronic kidney disease), and neurodevelopment disorders (attention-deficit/hyperactivity disorder).

Teaching Assistant

2017-Present

University of Guelph

Guelph, Ontario

- Behavioural Neuroscience II- I conducted weekly sheep brain dissection labs to teach students neuroanatomy. I also attended lectures and assisted with exam development.
- Advanced Topics in Cognitive Neuroscience- Grading research proposals.
- Statistical Analysis in Psychology- During weekly labs, I taught students how conduct statistical analysis in R for psychology research.
- Cognitive Psychology-Graded final papers.
- Personality- Graded case studies and discussion posts.
- Neurochemical Basis of Behaviour- Grading exams.
- Psychological Research Methods- Taught students how to compose proper APA formatted research papers during weekly seminars. I provided feedback and graded final research proposals.
- Introduction to Neuroscience- I assisted with student correspondence, grading exams, and generating exam questions.

Unpaid Teaching Experience

NEUR*6000 Principles of Neuroscience Guest Lecture

2021

- Delivered a guest lecture regarding the neurobiological basis of learning and memory in a graduate neuroscience seminar.

Brain Bee National Competition Training

2019

- Trained the Guelph Brain Bee champion on neuroanatomy for the national competition. I taught her brain structures and functions in the sheep and human brain. The student placed 3rd in the national competition.

Research Training

2017-present

- I have overseen twelve undergraduate student projects (Psychology, Neuroscience, and Biomedical Sciences) in the lab. This has involved organizing research projects, teaching research techniques, and assisting with final papers and presentations.

- I have experiencing teaching undergraduate and graduate students rat and mouse handling and injections, conducting object recognition, drug preparation, rat intracranial surgery, rat intracranial drug infusions, perfusions, brain slicing and staining for histology, brain tissue extraction, western blotting, and proteasome activity assays.

Science Outreach

Virtual Graduate School Preview Day 2020

- Representative for the Neuroscience and Applied Cognitive Science graduate program at the University of Guelph.

Brain Bee – University of Guelph 2018/19

- Assisted with organization and training for the annual local Brain Bee, a spelling bee style competition for high school students that tests knowledge about the brain and neuroscience research.

Science and Engineering Sunday - University of Guelph 2017/18/19

- Representative for the undergraduate Psychology and Neuroscience program at the Science and Engineering Sunday undergraduate recruitment event.

Fall Preview Day - University of Guelph 2018/19

- Representative for the undergraduate Neuroscience program at the Academic Resource Fair during the open house undergraduate recruitment event.

Graduate School Preview Day - University of Guelph 2017/18

- Discussed the Neuroscience and Applied Cognitive Science psychology graduate program as well as the Neuroscience Collaboration program with prospective graduate students.

Spring Academic Open House - University of Guelph 2018

- Representative for the undergraduate Neuroscience program at this undergraduate recruitment event.

Campus Day – University of Guelph 2018

- Representative for the undergraduate Neuroscience program at this University of Guelph recruitment event.

Café Curiosity – Guelph Public Library 2018

- Invited to participate in a local science-based book club to answer questions about memory and discuss the accuracy of information in the book.

Let's Talk Science Guelph Special Projects 2017

- Acted as a teaching assistant to demonstrated various science experiments for young children as a part of the organizations goal to deliver science, technology, engineering, and mathematics learning experiences.