

Meredyth A Wegener, PhD

Senior Lecturer
Interdisciplinary Program in Neuroscience
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Education:

Center for Neuroscience at the University of Pittsburgh
Doctorate in Neuroscience
Focus: Single unit recording, dopaminergic neural activity, local field potential oscillations, and stimuli encoding during reward-mediated instrumental behavior
Thesis Advisor: Bitá Moghaddam, Ph.D.
Dissertation Title: Impact of Learning and Diet on Two Distinct Populations of Midbrain Dopamine Neurons

University of Virginia
B.A. Neuroscience with Distinction
Focus: Emotion Regulation and Metabolism

Research Experience:

January 2013 – August 2017: Graduate student researcher, Neuroscience laboratory of Dr. Bitá Moghaddam, Center for Neuroscience at the University of Pittsburgh
August 2012 - December 2012: Graduate student researcher, Psychiatry laboratory of Dr. Colleen McClung, Translational Neuroscience Program at the University of Pittsburgh Medical Center
June 2011 – June 2012: Research Assistant, Neurobiology and Psychiatry laboratory of Dr. Patricio O'Donnell, University of Maryland School of Medicine
June 2010 - June 2011: Research Assistant, Anatomy and Neurobiology laboratory of Dr. Geoffrey Schoenbaum, University of Maryland School of Medicine
January 2008 - June 2010: Research Assistant and Sub-Investigator, Virginia Affective Neuroscience Laboratory of Dr. James Coan, University of Virginia
June 2007 - August 2007: Research Assistant, Physiology laboratory of Dr. Bradley Alger, University of Maryland School of Medicine

Teaching Experience:

Senior Lecturer at Vanderbilt University (2019-Present): Neurological Disease, Cellular and Molecular Neuroscience Special Topics: GABA, Drugs and Behavior, Neurophysiology, Neurobiology of Addiction, Neuroscience Honors Research

Visiting Lecturer at University of Pittsburgh (2018-2019): Drugs and Behavior; Brain and Behavior; Neuroscience Writing Practicum; Neuroscience Thesis Writing Practicum

Instructor at Johns Hopkins University Center for Talented Youth (Summer 2018, 2019): Introduction to Neuroscience; The Sensory Brain

Adjunct Instructor at University of Pittsburgh (2017-2018): Drugs and Behavior; Neurophysiology

Adjunct Instructor at Carnegie Mellon University (2017-2019): Neurobiology of Disease; Biochemistry of the Brain

Funding

July 2015 – June 2016: Trainee, NIH T32 Training Program in the Neurobiology of Substance Abuse, University of Pittsburgh Department of Psychiatry

August 2019 – August 2021: Fellow, NSF RCN-UBE: The Neuroscience Case Network (NeuroCaseNet), PIs: Kristen Frenzel & Patricia Marsteller, Emory University

August 2020: Fellow, Blended and Online Learning Design (BOLD) from Vanderbilt University Center for Teaching

Academic Year 2021-2022: Vanderbilt University Junior Faculty Teaching Fellowship

Organizations & Positions

2008-2015: Society for Neuroscience, member

2014-2016: Faculty for Undergraduate Neuroscience, Pre-Faculty Member

2016-2017: Center for the Neural Basis of Cognition Education Committee, student representative

2018-Present: Faculty for Undergraduate Neuroscience, Faculty Member

Professional Service

August 2021 – Present: Faculty VUceptor for Vanderbilt Visions

Academic Year 2021-2023: Vanderbilt University Faculty Council Member

Outreach Experience

Spring 2018: Tutor, Homeless Children Education Fund

April 2018, September 2018, April 2019, October 2019: Instructor, Gelfand Outreach at Carnegie Mellon University, *The Genes You Are Always Wearing*, and *Your Brain's Sensory World* for K-2nd grade

March 2018: Instructor, Biological Sciences Outreach Program, Tracking Disease Outbreak Using ELISA Assay. Funding provided through the Leonard Gelfand Center for Service Learning and Outreach. Dr. Carrie Doonan, Coordinator.

Fall 2017: Session Leader, TechNights at Carnegie Mellon University

Fall 2017: Volunteer, Gelfand Outreach at Carnegie Mellon University

Spring 2016: Volunteer, TechNights at Carnegie Mellon University

May 2014; May 2018: Grand Award Judge at the Intel International Science and Engineering Fair (ISEF) in Pittsburgh, PA

April 2014-2016: Category judge at the 75th Pittsburgh Regional Science and Engineering Fair (PRSEF)

November 2013-2015: CNUP Brain Program (University of Pittsburgh)

Presentations

Understanding Checkpoints: A summative assessment tool for metacognition, application of neuroscience concepts, and data figure interpretation. Neuroscience Teaching Conference, July 2021.

Publications:

McCane A.M.*, **Wegener M.A.***, Faraji M., Rivera Garcia M. T., Wallin-Miller K.G., Costa V., Moghaddam B. (In submission - 2021). Adolescent dopamine neurons represent reward differently during action and state guided learning. *Journal of Neuroscience* 41(45). **DOI:** 10.1523/JNEUROSCI.1321-21.2021

*authors contributed equally

Palissery G.K., Kuhn A., Brasier D.J. and **Wegener M.A.** (2018). Five Autobiographies and Two Realistic Fiction Books as Tools to Engage Students in Neurobiology of Disease: A Guide for Instructors. *Journal of Undergraduate Neuroscience Education* 17(1).

Bueno-Junior L.S., Simon N.W., **Wegener M.A.**, and Moghaddam B. (2017). Repeated nicotine strengthens gamma oscillations in the prefrontal cortex and improves visual attention. *Neuropsychopharmacology* 42(8): 1590-8. *Editor's Choice feature

Ein-Dor T., Coan J., Reizer A., Gross E., Dahan D., **Wegener M.A.**, Carel R., Cloninger C., and Zohar A. (2015). Sugarcoated isolation: evidence that social avoidance is linked to higher basal glucose levels and higher consumption of glucose. *Front. Psychol.* 6:492.

McDannald M.A., Esber G.R., **Wegener M.A.**, Wied H., Liu T.L., Stalnaker T.A., Jones J.L., Esber G.R., Trageser J., and Schoenbaum G. (2014). Orbitofrontal neurons acquire responses to 'valueless' Pavlovian cues during unblocking. *Elife* 3: e02653.

Research Posters:

2019 Society for Neuroscience Conference, Chicago, IL

McCane A.M., **Wegener M.A.**, Faraji M., Garcia R., Costa V.D., and Moghaddam B. 'Dopamine neuron response to reward presentation in adolescents: double dissociation of age and learning system.'

2016 Dopamine Meeting, Vienna, Austria

Wegener M.A. and Moghaddam B. 'Dopamine neurons in ventral tegmental area and substantia nigra pars compacta exhibit similar responses to reward-related cues and events.' *Intrinsic Activity*, 2016; 4 (Suppl.2):A18.74

2015 American College of Neuropsychopharmacology Annual Meeting, Hollywood, FL

Simon N.W., Bueno Jr L.S., **Wegener M.A.**, and Moghaddam B. 'Nicotine causes parallel increases in medial prefrontal cortex gamma oscillations and visual attention.'

2015 Society for Neuroscience Conference, Chicago, IL

Wegener M.A. and Moghaddam B. 'Ventral tegmental area and substantia nigra pars compacta exhibit similar neural responses to reward-related cues and events.'

Bueno-Junior L.S., Simon N.W., **Wegener M.A.**, and Moghaddam B. 'Nicotine exposure causes parallel increases in prefrontal cortex gamma oscillations and visual attention.'

2014 Federation of European Neuroscience Societies/Society for Neuroscience Summer School on 'Neurodevelopmental Psychiatric Disorders', Bertinoro, Italy

Wegener M.A., Simon N.A., Wood J., Kim Y., Sturman D.A., and Moghaddam B. 'Midbrain and striatal neural response to reward-related learning in adolescents and adults.'

2014 Society for Neuroscience Conference, Washington, D.C.

Wegener M.A. and Moghaddam B. 'Comparing the response of ventral tegmental area and substantia nigra neurons during the acquisition and maintenance of a reward-mediated instrumental task.'

2012 Society for Neuroscience Conference, New Orleans, LA

Sullivan E. M., **Wegener M. A.**, Hong L. E., O'Donnell P. 'Non-competing NMDA receptor antagonists alter auditory event-related potentials (ERP) in the rat.'

McDannald M.A., **Wegener M.A.**, Wied H., Liu T.-L., Stalnaker T.A., Jones J.L., Esber G.R., Trageser J., Schoenbaum G. 'Signaling reward prediction for value and identity in rodent orbitofrontal cortex during Pavlovian unblocking.'