Lauren L. Williamson

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Education

Ph.D. **Duke University,** Durham, NC *August 2009-May 2014*
Department of Psychology & Neuroscience
Degree awarded May 2014

B.A. **Williams College**, Williamstown, MA *June 2007*
Psychology (Concentration in Neuroscience) and Spanish

Academic Appointments

2018-present Assistant Professor, Department of Biological Sciences, Northern Kentucky University
2014-2018 Visiting Assistant Professor, Department of Psychology, Williams College

Research Interests and Positions

Hippocampal-dependent memory, neuroimmune interactions, role of microglia in normal brain function, prenatal/perinatal programming, gut macrobiome-brain interactions

Research Associate, Duke University, Psychology & Neuroscience *2007-2009*
Principal Investigators: Profs. Warren Meck and Christina Williams

Funding and Awards

Kentucky Biomedical Research Infrastructure Network (KBRIN) Investigator Development Award (IDeA) *2019-2021*
Kentucky Academy of Science (KAS) Athey Science Education & Outreach *2019*
NKU Faculty Benefits Committee Faculty Summer Fellowship *2019*
NKU Faculty Benefits Committee Project Grant *2019*
NKU Institute for Student Research/Creative Activity Faculty/student Project Development Award *2019*
Groff Foundation Funding for Undergraduate Research *2014-2018*
National Science Foundation Graduate Research Fellowship *2010-2013*
James B. Duke Fellowship *2009-2013*
Claire Hamilton Graduate Student Conference Travel Award *2011*

Professional Affiliations

Society for Neuroscience	*2008-present*
Psychoneuroimmunology Research Society	*2010-present*
Society for Behavioral Neuroendocrinology	*2012-present*
Faculty for Undergraduate Neuroscience	*2014-present*
Sigma Xi: the Scientific Research Society	*2017-present*
TriBeta Biology Honor Society	*2018-present*

Publications

Bukhari, S.H.F.*, Clark, O.E.*, & **Williamson, L.L.** (2018) Maternal high fructose diet and neonatal immune challenge alter offspring anxiety-like behavior and inflammation across the lifespan. *Life Sciences, 197,* 114-121.

Claypoole, L.D.*, Zimmerberg, B., & **Williamson, L.L.** (2017). Neonatal lipopolysaccharide treatment alters hippocampal neuroinflammation, microglia morphology and anxiety-like behavior in rats selectively bred for an infantile trait. *Brain, Behavior & Immunity, 59,* 135-146.

Williamson, L.L., McKenney, E., Holzknecht Z.E., Belliveau, C., Rawls, J.F., Parker, W., & Bilbo, S.D. (2016). Got worms? Perinatal exposure to helminths prevents immune sensitization and cognitive dysfunction induced by early-life infection. *Brain, Behavior & Immunity, 51,* 14-28.

McKenney, E., **Williamson, L.L.**, Yoder, A.D., Rawls, J.F., Bilbo, S.D., Parker, W. (2015). Alteration of the rat cecal microbiome during colonization with the helminth *Hymenolepsis diminuta*. *Gut Microbes, 6(3),* 182-93.

Williamson, L.L. & Bilbo, S.D. (2014). Neonatal infection modulates behavioral flexibility and hippocampal activation on a Morris Water Maze task. *Physiology & Behavior*, *129*, 152-159.

Williamson, L.L. & Bilbo, S.D. (2013). Chemokines and the hippocampus: A new perspective on hippocampal plasticity and vulnerability. *Brain, Behavior & Immunity*, *30*, 186-194.

Williamson, L. L., Chao, A.*, & Bilbo, S. D. (2012). Environmental enrichment alters glial antigen expression and neuroimmune function in the adult rat hippocampus. *Brain, Behavior & Immunity*, 26(3),500-10.

Williamson, L. L., Sholar, P. W., Mistry, R. S., Smith, S. H., & Bilbo, S. D. (2011). Microglia and memory: modulation by early-life infection. *J Neurosci, 31*(43), 15511-15521.

Williamson L.L., Cheng, R.K., Etchegaray M.* & Meck W.H. (2008) "Speed" warps time: Methamphetamine's interactive roles in drug abuse, habit formation, and the biological clocks of circadian and interval timing. *Curr Drug Abuse Rev*. 1: 203-212.

*denotes undergraduate co-author

Conference Presentations

Simpson J*, Smith A*, & **Williamson LL.** (2020 Mar) The effects of maternal helminths on neuroinflammation in offspring. Poster presented at Posters-at-the-Capitol, Frankfort, KY.

DeBurger E*, **Williamson LL** & Curran CP. (2019 Nov) Neuro-NORSE (Neuroscience Outreach Resources for Secondary Education): Low cost lessons for high school science labs. Poster presented at the meeting for the Kentucky Academy of Science, Berea College, KY. Won 2nd place for Best Undergraduate Poster in Science Education division.

Kennedy M*, Frey M*, & **Williamson LL.** (2019 Nov) A neuroinflammatory model's effects on rats throughout adulthood. Poster presented at the Southeast Regional IDeA Conference, Louisville, KY. Hosted by Kentucky Biomedical Research Infrastructure Network (KBRIN).

Frey M* & **Williamson LL.** (2019 Oct) Short-term chronic inflammation affects spatial memory and central inflammation throughout adulthood. Poster presented at the meeting for Society for Neuroscience, Chicago, IL.

Ul Fareed Bukhari H*, Clark OE*, **Williamson LL.** (2017 Nov) Maternal high fructose diet and neonatal immune challenge alters offspring anxiety-like behavior across the lifespan. Poster presented at the meeting for Society for Neuroscience, Washington, D.C.

Williamson LL, McKenney E, Parker W, & Bilbo SD. (2014 May) Biome reconstitution as a novel mechanism of preventing neonatal infection-induced cognitive dysfunction. Poster presented at the meeting for Psychoneuroimmunology Research Society, Philadelphia, PA.

Williamson LL, Ngan E*, & Bilbo SD. (2013 June) Cytokine and chemokine expression in the nucleus accumbens modulates morphine reinstatement in mice. Poster presented at the meeting for Society for Behavioral Neuroendocrinology, Atlanta, GA.

Williamson LL & Bilbo SD. (2012 Oct) Neonatal infection alters water maze learning and impairs flexibility: Correlation with neuronal activation in the dentate gyrus. Poster presented at the meeting for Society for Neuroscience, New Orleans, LA.

Williamson LL, Chao, A*, & Bilbo SD. (2011 Nov) Environmental enrichment alters glial antigen expression and neuroimmune function in the adult rat hippocampus. Poster presented at the meeting for Society for Neuroscience, Washington, D.C.

Mistry RS, **Williamson LL,** & Bilbo SD. (2010 Nov) Combined influence of neonatal and adult immune challenges on adult neuronal survival and activation in the dentate gyrus. Poster presented at the meeting for Society for Neuroscience, San Diego, CA.

Williamson LL & Bilbo SD. (2010 Nov) Microglia and memory: modulation by early-life infection. Poster presented at the meeting for Society for Neuroscience, San Diego, CA.

Williamson LL, Penner MR, Glenn MJ & Williams CL. (2009 Oct) Age-related changes in hippocampal ensemble activity are attenuated by prenatal choline supplementation in rats. Poster presented at the annual meeting for Society for Neuroscience, Chicago, IL.

Cordes S, **Williamson LL,** Alves K, Bhave SR, Rodriguez RM, Wetsel WC & Meck WH. (2008 Nov) The role of the norephinephrine transporter in interval timing. Poster presented at the annual meeting for Society for Neuroscience, Washington D.C.

Colloquia & Invited Talks

Environmental enrichment is a potent modulator of neuroimmune communication. Kenyon College Neuroscience Speakers Series. April 2, 2015

Professional Service

Northern Kentucky University
Department of Biological Sciences
TriBeta Biology Honor Society Initiation 2018
Biological Sciences Senior Student Awards 2019

Williams College
Williams Reads Program, First-Year Reading Program 2014-2017
Psychology Department
Course Coordinator, Psychology 101, Fall 2015
Psychology Major Advisor
Neuroscience Concentration Advisor
Academic Expo – discussing departmental offerings with accepted first-years (Spring) and enrolled first-years (Fall)

Scientific Community
Behavioural Brain Research, *ad hoc* reviewer
Brain and Behavior, *ad hoc* reviewer
Brain, Behavior & Immunity, *ad hoc* reviewer
eNeuro, *ad hoc* reviewer
Food & Function, *ad hoc* reviewer

Journal of Cellular and Molecular Neuroscience, *ad hoc* reviewer
Journal of Chemical Neuroanatomy, *ad hoc* reviewer
Neurobiology of Aging, *ad hoc* reviewer
Neuroscience, *ad hoc* reviewer
PLoS One, *ad hoc* reviewer

Community Outreach

Judge, Science and Engineering Fair of Northern Kentucky *2019-present*

- In-person judge at SEFNK for middle-school students with projects in the life sciences

Organizer, Brain Awareness Week at Williams College (3rd annual)

- Undergraduate outreach event with Office for Student Life
  - "Trivia Night" at a local restaurant
- Outreach event at Williamstown Elementary School in all 6th grade classrooms

Organizer, Brain Awareness Week at Williams College (2nd annual)

- Undergraduate outreach event with All-Campus Entertainment and Williams Mindfulness Group
- Public talk by Dr. Christina Williams (Duke University) for a layperson audience
- Outreach event at Williamstown Elementary School in all 6th grade classrooms

Organizer, Inaugural Brain Awareness Week at Williams College

- Undergraduate outreach event in collaboration with All-Campus Entertainment and Williams Mindfulness Group
- Public talk by Dr. Heather Williams at the Purple Pub for a layperson audience
- Outreach event at Williamstown Elementary School in all 6th grade classrooms

Visiting community member at Pine Cobble Pre-K classroom for "Body" unit on brains

Professional Development

Equity in Pedagogy Educator Learning Community, Bi-monthly seminar, Fall 2020
Center for Teaching and Learning

Allied Zone Training at NKU, Workshop Fall 2020
The Office of LGBTQ Programs & Services

Understanding the Dynamics of African-American Student Engagement at NKU
Workshop Spring 2019 with student panel. Dean's Office

Book discussion with STEM faculty, Winter & Spring 2018
Interrogating Whiteness and Relinquishing Power: White Faculty's Commitment to Racial Consciousness in STEM Classrooms

"Teaching Millennials" Weekly Seminar, Fall 2015
Davis Center of the Office of Institutional Diversity and Equity

Creative Endeavors/Writing Roundtable, Fall 2015
Semester-long collaboration with 3 junior faculty; continuing our own scholarship while maintaining our teaching load

Research Roundtable, Spring 2015
Semester-long collaboration with 3 junior faculty; translating our own scholarship to the classroom

"Teaching in the Diverse Classroom" Weekly Seminar, Fall 2014
Davis Center of the Office of Institutional Diversity and Equity

Teaching Experience

Northern Kentucky University, 2018-present

Human Anatomy and Physiology I (BIO 208)
Human Anatomy and Physiology I Lab (BIO 208L)
Human Anatomy and Physiology II Lab (BIO 209L)
Introduction to Biology I and Lab (BIO 150/L)
Introduction to Neuroscience (NEU 101)
Mammalian Anatomy and Physiology I Lab (BIO 425L)
Neuroanatomy and Lab (NEU 301/L)

Williams College, 2014-2018

Introduction to Psychology (PSYC 101) – Course Coordinator F'2015
Introduction to Neuroscience (PSYC 212/NSCI 201)
The Brain, Behavior and the Immune System (PSYC 312/NSCI 312)
Neuroscience Senior Seminar (NSCI 401)
Perspectives on Psychological Issues (PSYC 401)

Duke University, Teaching Assistantships 2010-2012

Fundamentals of Neuroscience (Neurosci 114) Instructor: Dr. Warren Meck
Biological Bases of Behavior (Neurosci 101) Instructor: Dr. Christina Williams
Introduction to Psychology (Psychology 101) Instructor: Dr. Christina Grimes

Mentorship

Northern Kentucky University Mentoring 2018-present

Center for Integrative Natural Science and Mathematics (CINSAM)
UR-STEM Program

- Michael Kennedy
- Mitchell Ketron
- Erin Matthews
- Jarred Simpson

Honors College Capstone

- Olivia DeMoisey
- Noah Ragland
- Alexandria Smith
- Madeleen Weaver

Institute for Student Research and Creative Activity Award

- Jennifer Toyo

NEU 492

- Clemence Debacq
- Lisa Massie
- Sara Steffen

NKU Academic Year/Summer Research Assistants

- Addie Green
- Mark Middendorf
- Ashlee Taylor
- Christopher Wallace

Williams College Mentoring 2014-18

Honors thesis advisor

- Syed Hussain Ul Fareed Bukhari '18
  - The effects of hyperglycemia and neonatal immune activation on rodent offspring anxiety-like behavior and inflammation
- Marianna Frey '18
  - Neuroinflammatory model of Alzheimer's disease elucidates neural and cognitive effects of systemic inflammation throughout adulthood
- Terrance Mensah '17
  - The effect of inflammation and traumatic brain injury on context- object discrimination in the mouse
- Lauren Claypoole '16
  - The effect of neonatal inflammation on neural inflammation and anxiety behavior in selectively-bred rats
- Kathryn McNaughton '16
  - Effects of sex and pro-inflammatory cytokines on context discrimination memory

Independent Study (NSCI 397/8; PSYC397/8)

- Rachel Oren '18
  - Combined impact of chronic mild stress and fluoxetine treatment on depressive-like behavior in adolescent rats
- Olivia Clark '17

    - Impact of maternal high fructose diet and neonatal inflammation on juvenile rat anxiety-like behavior
- Amelia Hidalgo ‘17
    - The effect of hypertension and inflammation on anxiety-like behavior and hippocampal-dependent learning
- Syed Hussain Ul Fareed Bukhari ‘18
    - Interaction of gestational diabetes and neonatal inflammation on neonatal pup anxiety-like behavior
- Jesse Rodriguez ‘16
    - Metabolism and the Immune System: a bidirectional relationship
- Moneesha Mukherjee ‘15
    - Effects of experimental autoimmune encephalomyelitis on synaptic stability in the hippocampus

Williams College Academic Year/Summer Research Assistants

Moneesha (Rani) Mukherjee ‘15
Candice Dyce ‘17
Sara Lehman ‘17
Amelia Hidalgo ‘17
Mikaela Cordasco ‘18
Syed Hussain Ul Fareed Bukhari ‘18
Lauren Steele ‘18
Rachel Oren ‘18
Hayley Tartell ‘18
Masen Boucher ‘19
Aria Kim ‘19
Jessica Kim ‘19
Anna Leonard ‘19
Sabrina Sanchez ‘20
Emaun Irani ‘20

Duke University Mentoring 2010-2014

Graduation with Distinction Advisor

- Geoffrey Houtz ‘14
    - The effects of neonatal handling on opiate self-administration and subsequent glial activation
- Emily Ngan ‘13
    - The role of microglia in addiction in a mouse model
- Agnes Chao ‘11
    - Effects of environmental enrichment on neurogenesis, gliogenesis and the CNS immune response to inflammatory challenge

Howard Hughes Vertical Integration Program (Summer Students)

Geoffrey Houtz ‘14
Hanna Kemeny ‘13

Emily Ngan ‘13
Arin Pamukcu ‘13
Akhil Sharma ‘15
Haley Sullivan ‘15