

Curriculum Vitae  
William J. Horton

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**EDUCATION**

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Ph.D. University of Colorado, Boulder, CO (2009-2013)  
Ph.D. in Neuroscience and Integrative Physiology  
Certificate in Behavioral Genetics.  
Dissertation: *The Effect of Melatonin on Nicotine Behaviors and Nicotinic Receptor Function*

B.S. Michigan State University, East Lansing, MI (2001-2004)  
B.S. in Zoology with a concentration in Animal Behavior and Neurobiology.

**ACADEMIC APPOINTMENTS**

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6/20 – Present Faculty Associate, Psychology & Neuroscience, Bucknell University  
8/19 – 5/20 Visiting Assistant Professor of Psychology & Neuroscience, Bucknell University  
9/14 – 8/19 Post-Doctoral Research Associate, Pennsylvania State University  
9/13 – 9/14 Post-Doctoral Scholar, Pennsylvania State University  
8/09 – 8/13 Graduate Research Associate, University of Colorado, Boulder  
7/08 – 8/09 Professional Research Assistant, Yale University  
7/07 – 6/08 Graduate Research Associate, Oregon Health & Science University  
4/05 – 7/07 Professional Research Assistant, University of Colorado, Boulder  
11/01 – 6/04 Undergraduate Research Assistant, Michigan State University

**TEACHING EXPERIENCE**

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*Course Instruction:*

Course	Institution	Role	Course Description
Behavioral Neuroscience (NEUR 254)	Bucknell University	Professor	This is the second course in a year-long core neuroscience curriculum. The course objectives were to examine systems and behavioral neuroscience. This course did not exist when I arrived at Bucknell. I was responsible for

			developing the course and teaching the first implementation in Spring 2020.
Research Methods 1 (PSYC 216)	Bucknell University	Professor	This course is an introduction to the methods used and issues faced by researchers. Topics include ethics, study design, data collection and analysis, and communication of empirical findings.
Biopsychology (PSYC/NEUR 250)	Bucknell University	Professor	This course covers the biological bases of behavior and the relationship to motivation, learning, and perception. This course begins with the electrophysiological function of neurons through an introduction to systems neuroscience.
Biopsychology of Sleep Seminar (PSYC 319)	Bucknell University	Professor	In this course we explore the psychology and physiology of sleep, how it is embedded in everyday life for good or ill, and sleep as a “positive health behavior.” This course provides an overview of sleep as a biological and behavioral state and its role in physical and mental health.
Neurological Basis of Human Behavior (BBH 203)	Pennsylvania State University	Professor	This introductory neuroscience course spans neuroanatomy and physiology to complex behavior and disease.
Physiological Genetics and Genomics (IPHY 4200)	University of Colorado-Boulder	Graduate Teaching Assistant	This course covered fundamental concepts in molecular genetics/genomics with physiological applications. As graduate TA, I taught lectures on animal models, led review sessions, and graded assignments.

### *Professional Development Workshops & Courses*

#### Teaching

Bucknell Course Design & Pedagogy Workshop (3 day intensive)  
 Bucknell New Faculty Weekly Pedagogy Series (1 hr/week, 18 weeks)  
 Penn State Essentials for Online Teaching (PSU #OL2050)  
 University of Colorado Graduate Teaching Workshop – General Pedagogy (2 day intensive)

#### Diversity & Inclusion

Penn State Safe Zone 101 – LGBTQ+ Fundamentals (1 day intensive)  
 Penn State Safe Zone Advanced (1 day intensive)  
 Bucknell Friday Learning Series (Inclusivity Elsewhere, Inclusivity Here)  
 Bucknell Round Table Discussions – FLS Student Perspectives, Creating Safe Publics (3 hr)

#### *Mentoring*

I have assisted in mentoring nine graduate students and directly mentored more than 30 undergraduate students. Of these, 11 have co-authored journal articles, and 18 are co-authors on abstracts. I have also mentored students through the graduate and professional school application process, and many of these students have matriculated into successful MD and PhD programs.

## **Publications:**

*\* Indicates equal contribution*

*Underline indicates student coauthor*

**Horton WJ**, Jensen M, Sebastian A, Albert I, Praul CA, Bartell PA. Transcriptome Analyses of Heart and Liver Reveal Novel Pathways for Regulating Songbird Migration Sci Rep. 2019 Apr 15;9(1):6058. doi: 10.1038/s41598-019-41252-8.

Silva CP, **Horton WJ**, Caruso MJ, Sebastian A, Klein LC, Albert I, Kamens HM. The influence of adolescent nicotine exposure on ethanol intake and brain gene expression. PLoS One. 2018 Jun 18;13(6):e0198935.

Pisupati A, Mickolajczyk KJ, **Horton W**, van Rossum DB, Anishkin A, Chintapalli SV, Li X, Chu-Luo J, Busey G, Hancock WO, Jegla T. The S6 gate in regulatory Kv6 subunits restricts heteromeric K<sup>+</sup> channel stoichiometry. J Gen Physiol. 2018 Dec 3;150(12):1702-1721.

Branstetter SA, **Horton WJ**, Mercincavage M, Buxton OM. Severity of Nicotine Addiction and Disruptions in Sleep Mediated by Early Awakenings. Nicotine Tob Res. 2016 Dec;18(12):2252-2259.

**Horton WJ**, Gissel HJ, Saboy JE, Wright KP, Stitzel JA. Melatonin Administration Alters Nicotine Preference Consumption via Signaling Through High-Affinity Melatonin Receptors. Psychopharmacology. 2015 Jul;232(14):2519-30.

Mexal S, **Horton WJ**, Crouch EL, Maier SI, Wilkinson AL, Marsolek M, Stitzel JA. Diurnal Variation in Nicotine Sensitivity in Mice: The Role of Genetic Background and Melatonin. Neuropharmacology. 2012 Nov;63(6):966-73.

Tammimäki A\*, **Horton WJ\***, Stitzel JA Recent Advances in Gene Manipulation and Nicotinic Acetylcholine Receptor Biology. Biochem Pharmacol. 2011 Oct 15;82(8):808-19.

Bierut LJ, Stitzel JA, Wang JC, Hinrichs AL, Grucza RA, Xuei X, Saccone NL, Saccone SF, Bertelsen S, Fox L, **Horton WJ**, Breslau N, Budde J, Cloninger CR, Dick DM, Foroud T, Hatsukami D, Hesselbrock V, Johnson EO, Kramer J, Kuperman S, Madden PA, Mayo K, Nurnberger J Jr, Pomerleau O, Porjesz B, Reyes O, Schuckit M, Swan G, Tischfield JA, Edenberg HJ, Rice JP, Goate AM. Variants in nicotinic receptors and risk for nicotine dependence. Am J Psychiatry. 2008 Sep;165(9):1163-71.

Hutchison KE, Haughey H, Niculescu M, Schacht J, Kaiser A, Stitzel J, **Horton WJ**, Filbey F. The incentive salience of alcohol: translating the effects of genetic variant in CNR1. Arch Gen Psychiatry. 2008 Jul;65(7):841-50.

Goddeeris MM, Cook-Wiens E, **Horton WJ**, Wolf H, Stoltzfus JR, Borrusch M, Grotewiel MS. Delayed behavioural aging and altered mortality in Drosophila beta integrin mutants. Aging Cell. 2003 Oct;2(5):257-64.

Stoltzfus JR, **Horton WJ**, Grotewiel MS. Odor-guided behavior in Drosophila requires calreticulin. J Comp Physiol A Neuroethol Sens Neural Behav Physiol. 2003 Jun;189(6):471-83.

### *Submitted Manuscripts*

Kamens HM, Miller CN, Caulfield JI, Zeid D, **Horton WJ**, Silva C, Sebastian A, Albert I, Gould T, Fishbein D, Grigson PS, Cavigelli SA. Effect of adolescent social stress on adult morphine-induced behavioral sensitization is dependent upon genetic background (Under review)

### *Manuscripts in Preparation*

**Horton WJ**, Patterson AD, Bartell PA. Metabolomic Profiling of Migratory Songbirds Reveal Novel Bile Acid Signaling (In Preparation)

**Horton WJ**, Hovart-Gordon M, Bartell PA. Diurnal Modulation of Plasma Cytokine Levels During Nocturnal Migration (In Preparation)

**Horton WJ**, Caulfield JI, Caruso MJ, Kamens HM, Bourne RA, August A, Klein LC, Bonneau RH, Craig T, Cavigelli SA. Altered hippocampal gene expression as a result of developmental asthma symptoms in mice (In Preparation)

### **Conference Presentations:**

**Horton, WJ**, Bartell, PA. De Novo Assembly and Differential Expression Analyses to Examine Protection from Extreme Sleep Restriction During Migration in White-Throated Sparrows. Society for Research on Biological Rhythms, Amelia Island, FL (2018)

Azar ST, McGuier DJ, **Horton WJ**, Cooley DT, Miller EA, Bartell PA. Delayed-Phase, Sleep Instability, Sleep Concordance and Awakenings: Preliminary Associations with Social and Neurocognitive Difficulties and Parenting Risk. SLEEP, Boston, MA (2017)

**Horton WJ**, Azar ST, McGuier DJ, Cooley DT, Miller EA, Bartell PA. Amplitude of Light Exposure is Associated with Maternal Hostile Attributions and Child Behavioral Problems. SLEEP, Boston, MA (2017)

Bartell PA, **Horton WJ**, Langford BD, Neuberger T. Clock Control of Nocturnal Migratory Restlessness. International Symposium on Avian Endocrinology, Niagara-on-the-Lake, ON, Canada (2016)

**Horton WJ**, Jensen M, Albert I, Bartell PA. Exploring Physiological Changes Underlying Protection From Severe Sleep Restriction in Migrating Birds. Society for Research on Biological Rhythms Meeting, Tampa, FL (2016)

Silva CP, Caruso MJ, **Horton WJ**, Kamens HM. The effect of nicotine exposure on ethanol consumption and gene expression: a WGCNA analysis. Genes, Brain & Behavior Annual Meeting, Bar Harbor, Maine (2016)

Caruso MJ, Kamens HM, **Horton WJ**, August A, Klein LC, Bonneau RH, Craig T, Cavigelli SA. Hippocampal Gene Networks Associated with Anxiety- and Depression-Like Behavior Caused by Adolescent Asthma Symptoms in Mice. Neurobiology of Stress Workshop, Newport Beach, California (2016)

**Horton WJ**, Laughlin JR, Saboy JE, Gissel HJ, Fraser LJ, Stitzel JA. Signaling Through MT1/MT2 Melatonin Receptors Effects Nicotine Behaviors and Nicotinic Receptor Activity? 288.05 Society for Neuroscience Annual Meeting, New Orleans, LA (2012)

**Horton WJ**, Frazier L, Gissel HJ, Nyugen V, Stitzel JA. A Novel Model of Oral Nicotine Intake to Achieve Rapid, High Consumption in Mice. Genes, Brain & Behavior Annual Meeting, Boulder, Colorado (2012)

Donner NC, **Horton WJ**, Kopelman JM, Stitzel JA, Lowry CA. Depressive-like Phenotype in Male Mice After Two Weeks of Nicotine Treatment. Genes, Brain & Behavioral Annual Meeting, Boulder, Colorado (2012)

**Horton WJ**, Sheneman DW, Gissel HJ, Stitzel JA. Signaling Through Mtnr1a / Mtnr1b Melatonin Receptors Effects Nicotine Preference Drinking. Genes, Brain & Behavior Annual Meeting, Rome, Italy (2011)

Stitzel JA, **Horton WJ**, Myrick ME, Vanengelenburg SB. The CHRNA5 D398N polymorphism alters the function of alpha4beta2alpha5 nicotinic receptors. Society for Neuroscience 627.8 (2008)

Phillips TJ, Meyer PJ, **Horton WJ**, Burkhart-Kasch S, Therrien C. Genetically determined heightened sensitivity to alcohol is associated with increased nicotine intake in adolescent FAST and SLOW mice. *Alcohol Clin Exp Res.* 32(S1), 76A. (2008)

Drapeau JA, **Horton WJ**, Stitzel JA. Molecular mechanism of CDK5 modulation on mouse  $\alpha 4\beta 2$  nicotinic acetylcholine receptor function. Program No. 325.4. Atlanta, GA: Society for Neuroscience. (2006)

Stitzel JA, Brooks JC, Karadsheh MS, Flanagan BA, **Horton WJ**, Butt CM. Modulation of  $\alpha 4\beta 2$  nicotinic acetylcholine receptors by CDK5 Program No. 722.6. Washington, DC: Society for Neuroscience. (2005)

Wolf H, **Horton WJ**, Borrusch M, Goddeeris MM, Cook-Wiens E, Grotewiel MS. Altered Life Span and Delayed Behavioral Aging in Beta-Integrin Mutants. University Undergraduate Research Arts Forum, Michigan State University (2004)

Grotewiel MS, Goddeeris MM, Cook-Wiens E, **Horton WJ**, Wolf H. Altered Life Span and Stress Resistance in Beta-Integrin Mutants. Drosophila Research Conference. (2003)

Grotewiel MS, Goddeeris MM, Cook-Wiens E, **Horton WJ**, Wolf H. Altered Life Span and Stress Resistance in Drosophila Beta-Integrin Mutants. Gordon Research Conference, Biology of Aging. (2003)

### **Professional Service:**

Ad-Hoc Reviewer for *Scientific Reports*; *PLOS One*

Post-doctoral member Eberly College of Science Climate and Diversity Committee

Graduate Student Representative, Academic Review and Planning Advisory Committee - Institute of Behavioral Genetics, University of Colorado, Boulder

### **Awards and Honors:**

**Society for Research on Biological Rhythms Excellence Award for Molecular Clock** (2018). This was a competitive award based on submitted abstracts that came with an invitation to give an oral presentation at the annual meeting and a travel award.

**Society for Research on Biological Rhythms Merit Award** (2016). A competitive award for travel to the annual meeting.

**International Behavioral and Neural Genetics Society Travel Award** (2012). A competitive award for travel to the annual meeting.

**International Behavioral and Neural Genetics Society Travel Award** (2011). A competitive award for travel to the annual meeting.

**National Institute of Drug Abuse Institutional Training Grant Awardee** – Genetics of Substance Abuse (5T32DA017637-07) University of Colorado (PI: John Hewitt)

**Achievement Rewards for College Scientist Scholarship (ARCS) Recipient** (2007-2008)

**Multidisciplinary Training in Neuroscience Training Grant Awardee** - (5T32NS007466-07) Oregon Health & Sciences University (PI: Gary Banker)

**Phi Sigma Theta National Honor Society**

**National Society of Collegiate Scholars**

**Golden Key International Honor Society**

### **Funding:**

#### **Completed:**

J. Lloyd Huck Bio-technology Mini Grant (2015) - Metabolomic Changes During Avian Migration

Beverly Sears Graduate Student Grant Recipient (a competitive award funding research from within the University of Colorado Graduate School, Total Award \$1000)

MSU College of Natural Science Undergraduate Research Support (2002 and 2003)- A competitive research award given by the Michigan State College of Natural Science

Scored, but unfunded:

F31 NRSA National Institute on Drug Abuse (NIDA, 2012) - The Effect of Melatonin on Nicotine Behaviors and Nicotinic Receptor Function

**Professional Society Memberships:**

International Behavioural and Neural Genetics Society

Society for Research on Nicotine and Tobacco

Society for Neuroscience

Society for Research on Biological Rhythms

**Computing, Analysis and Programming Language Skills:**

<b>Bioinformatics</b>	TopHat, DESeq, EdgeR, Trimmomatic, Bowtie, dammit, BLAST, mummichog, XCMS, among others
<b>Data Analysis</b>	Expert in R and numerous associated packages, SPSS, GraphPad Prism, ImageJ and other specific analysis tools
<b>Programming</b>	More than 10 years of experience with R, bash scripting in Linux, with working knowledge of C++ and Python
<b>Cloud Computing</b>	Microsoft Azure, Amazon Web Services, Penn State ICS-ACI