

Curriculum Vitae

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Jordan Marie Ross

[website](#)

Office Address: Petit Science Center
100 Piedmont Ave SE
Atlanta, GA 30303

Personal Address: 919 McGill Park Ave NE
Atlanta, GA, 30312

Phone: 404.895.9051

Email: jross75@gsu.edu

Citizenship: USA

ORCID: 0000-0003-4345-0135

[PUBMED Bibliography](#)

[LinkedIn](#)

Education

- 2013-2019 Ph.D., University of Tennessee Health Science Center
Department of Anatomy and Neurobiology
Conferred: August 2, 2019
Advisor: Max L. Fletcher
Dissertation: Fear learning and the olfactory bulb: Neural correlates of behavioral fear generalization
- 2009-2013 B.S., University of North Georgia, Dahlonega, GA
Major: Psychological Science
Minor: Biology

Professional Appointments

- 2020-current Postdoctoral Fellow
Georgia State University
Neuroscience Institute
Center for Behavioral Neuroscience
Atlanta, GA, USA
- 2019-2020 Next Generation New Scholar Postdoctoral Research Associate
Georgia State University
Neuroscience Institute
Center for Behavioral Neuroscience
Atlanta, GA, USA

Research

Current Research Funding

2020 Large-scale monitoring of circuits for adaptation and novelty detection in primary visual cortex (1F32MH125445)

Funding Agency: National Institute of Mental Health (NIMH); BRAIN Initiative Fellows

Project Dates: 09/30/2020 to 9/29/2023

Past Research Funding

2017 Fear learning-induced transformations of olfactory bulb odor representations and behavioral generalization (F31DC016485)

Funding Agency: National Institute on Deafness and Other Communication Disorders (NIDCD)

Project Dates: 07/01/2017 to 06/30/2019

Publications:

1. Bastos, G., Holmes, J.T., **Ross, J.M.**, Rader, A.M., Gallimore, C.G., Peterka, D.S., & Hamm, J.P. (2023) A frontosensory circuit for visual context processing is synchronous in the theta/alpha band. *Biorxiv*, doi: <https://doi.org/10.1101/2023.02.25.530044> preprint, under review
2. Van Derveer, A.B., Bastos, G., Ferrell, A.D., Gallimore, C.G., Greene, M.L., Holmes, J., Kubricka, V., **Ross, J.M.**, & Hamm, J.P. (2021). A role for somatostatin-positive interneurons in neuro-oscillatory and information processing deficits in schizophrenia. *Schizophrenia Bulletin*, sbaa184. doi: 10.1093/schbul/sbaa184
3. **Ross, J. M.**, & Hamm, J. P. (2020). Cortical Microcircuit Mechanisms of Mismatch Negativity and Its Underlying Subcomponents. *Frontiers in Neural Circuits*, 14:13. doi: 10.3389/fncir.2020.00013
4. **Ross, J. M.**, Bendahmane, M., & Fletcher, M. L. (2019). Olfactory Bulb Muscarinic Acetylcholine Type 1 Receptors Are Required for Acquisition of Olfactory Fear Learning. *Frontiers in Behavioral Neuroscience*, 13:164. doi: 10.3389/fnbeh.2019.00164
5. **Ross, J. M.**, & Fletcher, M. L. (2018). Assessing Classical Olfactory Fear Conditioning by Behavioral Freezing in Mice. *Bio-protocol*, 8(18): e3013. doi: 10.21769/BioProtoc.3013.
6. **Ross, J. M.**, & Fletcher, M. L. (2018). Aversive learning-induced plasticity throughout the adult mammalian olfactory system: Insights across development. *Journal of Bioenergetics and Biomembranes*, doi: 10.1007/s10863-018-9770-z
7. Ogg, M. C., **Ross, J. M.**, Bendahmane, M., & Fletcher, M. L. (2018). Olfactory bulb acetylcholine release dishabituates odor responses and reinstates odor investigation. *Nature Communications*, 9(1). doi: 10.1038/s41467-018-04371-w
8. **Ross, J. M.**, & Fletcher, M. L. (2018). Learning-Dependent and -Independent Enhancement of Mitral/Tufted Cell Glomerular Odor Responses Following Olfactory Fear Conditioning in Awake Mice. *The Journal of Neuroscience*, 38(20), 4623-4640. doi: 10.1523/jneurosci.3559-17.2018
9. McAfee, S.S., Ogg, M.C., **Ross, J.M.**, Liu, Y., Fletcher, M.L., & Heck, D.H. (2016). Minimally invasive highly precise monitoring of respiratory rhythm in the mouse using an epithelial temperature probe. *Journal of Neuroscience Methods*. 263:89-94. doi: 10.1016/j.jneumeth.2016.02.007
10. Rao, S.K., **Ross, J.M.**, Harrison, F.E., Bernardo, A., Reiserer, R.S., Reiserer, R.S., Modley, J.A., & McDonald, M.P. (2015) Differential proteomic and behavioral effects of long-term voluntary exercise in wild-type and APP-overexpressing transgenics. *Neurobiology of Disease* (78):45-55. doi: 10.1016/j.nbd.2015.03.018

11. Shanks, R.A., **Ross, J.M.**, Doyle, H.H., Helton, A.K., Picou, B.D., Schulz, J., Tavares, C., Bryant, S., Dawson, B.L., & Lloyd, S.A. (2015) Adolescent exposure to cocaine, amphetamine, and methylphenidate cross-sensitizes adults to methamphetamine with drug- and sex-specific effects. *Behavioural Brain Research* (281):116-24. doi: 10.1016/j.bbr.2014.12.002

Research Honors and Awards:

1. Society for Neuroscience Trainee and Professional Development Award, 2021
2. Science ATL Communication Fellowship, 2021
3. Center for Behavioral Neuroscience Next Generation New Scholar Postdoctoral Associate, 2020
4. Center for Behavioral Neuroscience Next Generation New Scholar Postdoctoral Associate, 2019
5. Association for Chemoreception Sciences Don Tucker Memorial Award (for outstanding graduate student presentation), 2019
6. University of Tennessee Health Science Center College of Graduate Health Sciences Travel Award, 2019
7. University of Tennessee Health Science Center Neuroscience Institute Travel Award, 2018
8. Work selected for Art of Science Exhibit hosted by Memphis College of Art, 2018
9. University of Tennessee Health Science Center Neuroscience Institute Travel Award, 2017
10. University of Tennessee Health Science Center Neuroscience Institute Travel Award, 2016
11. University of North Georgia Steve Noble Undergraduate Research Award, Department of Psychological Science, 2013
12. North Georgia 18th Annual Research Conference, Psychology, Sociology, Biology, and Business Panel, First Place Presentation, 2013
13. Faculty – Undergraduate Summer Engagement Grant for Undergraduate Research, Center for Undergraduate Research and Creative Arts, 2012

Poster Presentations:

* Denotes presenting author

1. Rader, A.M.*, Sutton, T.J., Gallimore, C.G., **Ross, J.M.**, Sweet, R.A., Grubisha, M.J., & Hamm, J.P. Perturbing the dendritic arbor in adolescence impairs long-range cortical synchrony and predictive processing. Gordon Research Conference Dendrites: Molecules, Structure, and Function. Lucca (Barga), LU, Italy. 2023
2. **Ross, J.M.*** & Hamm, J.P. Sensory prediction error in cortical circuits develops across adolescence in a sex-specific manner. Society for Neuroscience. San Diego, CA. 2022
3. **Ross, J.M.***, Bastos, G.B., Holmes, J.T., & Hamm, J.P. Monitoring neuronal contributions to sensory novelty detection in primary visual cortex. 8th Annual BRAIN Initiative Investigator Meeting. Hybrid. NIH, Bethesda, Maryland. 2022
4. Bastos, G.* , Holmes, J.T., **Ross, J.M.**, Rader, A.M., Gallimore, C.G., & Hamm, J.P. Top-down synchrony at theta band drives VIP interneurons to allow prediction error generation in visual cortex. Cold Spring Harbor Laboratory meeting on Neuronal Circuits. Cold Spring Harbor, NY. 2022.
5. Jasso, K.R.*, **Ross, J.M.**, Fletcher, M.L., & McIntyre, J.C. Modulation pathways of MCHR1 in olfaction. Association for Chemoreception Sciences. Bonita Springs, FL. 2022

6. Hamm, J.P.*, Bastos, G., Holmes, J.T., Gallimore, C.G., Ferrell, A., & **Ross, J.M.** Long-range synchronization in the alpha-band differentially engages VIP and SST interneurons in visual cortex to support novelty detection during an oddball paradigm. American College of Neuropsychopharmacology. San Juan, Puerto Rico. 2021
7. **Ross, J.M.*** & Hamm, J.P. Characterizing the development of sensory prediction error in cortical circuits. Society for Neuroscience. Virtual. 2021
8. **Ross, J.M.*** & Hamm, J.P. Monitoring functionally distinct neuronal contributions to contextual encoding of sensory stimuli. 7th Annual BRAIN Initiative Investigator Meeting. Virtual. 2021
9. **Ross, J.M.*** & Hamm, J.P. Characterizing cortical ensembles that process prediction in primary visual cortex. Brains & Behavior Retreat. Atlanta, GA. Virtual. 2021
10. Gallimore, C.G.*, **Ross, J.M.**, Holmes, J., Ferrell, A.D., & Hamm, J.P. Differential responding of cortical cell-types for novelty detection. SfN Global Connectome. Virtual. 2021
11. **Ross, J.M.**, Bastos, G., Ferrell, A., Gallimore, C.G., Holmes, J.T., & Hamm, J.P*. Three non-overlapping cortical interneuron subtypes relate to distinct neuro-oscillatory biomarkers for psychiatry. American College of Neuropsychopharmacology. Virtual. 2020
12. Jasso, K.R.*, **Ross, J.M.**, Kulaga, H., Fletcher, M.L., Reed, R.R., & McIntyre, J.C. The ciliary localized GPCR, MCHR1, modulates odor responses in the olfactory bulb. Experimental Biology. San Diego, CA. 2020
13. Jasso, K.R.*, **Ross, J.M.**, Kulaga, H., Fletcher, M.L., Reed, R.R., & McIntyre, J.C. MCHR1 localizes to primary cilia of olfactory bulb granule cells and modulates glomerular responses to odors. Society for Neuroscience. Chicago, IL. 2019
14. Van Derveer, A.B.*, Ferrell, A.D., Greene, M.L., Holmes, J.T., Kubricka, V., **Ross, J.M.**, Hamm, J.P. Neuronal ensembles for auditory and visual novelty detection in posterior parietal cortex. Society for Neuroscience. Chicago, IL. 2019
15. Jasso, K.R.*, **Ross, J.M.**, Kulaga, H., Fletcher, M.L., Reed, R.R., & McIntyre, J.C. Melanin-concentrating hormone serves a modulatory role in the mouse olfactory bulb. European Chemoreception Research Organization. Trieste, Italy. 2019
16. **Ross, J.M.*** & Fletcher, M.L. Mitral and tufted cells encode different aspects of learned olfactory fear. Association for Chemoreception Sciences. Bonita Springs, FL. 2019 **Digital Poster; Don Tucker Memorial Award Winner**
17. Jasso, K.R.*, **Ross, J.M.**, Kulaga, H., Fletcher, M.L., Reed, R.R., McIntyre, J.C. Role of the ciliary enriched G-protein coupled receptor, MCHR1, in olfactory signaling. Association for Chemoreception Sciences. Bonita Springs, FL. 2019
18. **Ross, J.M.*** & Fletcher, M.L. Olfactory fear learning alters spatiotemporal coding of olfactory stimuli. Association of Southeastern Biologists. Memphis, TN. 2019.
19. **Ross, J.M.*** & Fletcher, M.L. Learning-dependent and -independent enhancement of olfactory bulb odor responses following olfactory fear conditioning in awake mice. Society for Neuroscience. San Diego, CA. 2018
20. **Ross, J.M.*** & Fletcher, M.L. Visualizing cholinergic signaling in the olfactory bulb. Association for Chemoreception Sciences. Bonita Springs, FL. 2018
21. **Ross, J.M.*** & Fletcher, M.L. Distinct circuits mediate glomerular enhancements for trained and untrained stimuli following aversive conditioning. Association for Chemoreception Sciences. Bonita Springs, FL. 2017
22. **Ross, J.M.*** & Fletcher, M.L. Classical olfactory fear conditioning non-selectively enhances olfactory bulb glomerular responses in awake behaving mice. Society for Neuroscience. San Diego, CA. 2016

23. **Ross, J.M.*** & Fletcher, M.L. Non-selective enhancement of olfactory bulb glomerular responses following olfactory fear conditioning in awake behaving mice. Association for Chemoreception Sciences. Bonita Springs, FL. 2016
24. **Ross, J.M.***, Dawson, B.L., & Tran, N.M. If “we do” then “I can’t”: Discrimination and career mobility of same-race and interracial applicants. North Georgia Annual Research Conference. Dahlonega, GA. 2013
25. Tavares, C.*, Schulz, J., **Ross, J.M.**, Helton, A.K., Lloyd, S.A., & Shanks, R.A. Does Adolescent Exposure to Methylphenidate Elicits Changes in Δ FosB expression? A Possible Underlying Mechanism of Cross-Sensitization. Association of Southeastern Biologists. Charleston, WV. 2013
26. Schulz, J.*, Tavares, C., **Ross, J.M.**, Helton, A.K., Lloyd, S.A., & Shanks, R.A. BDNF expression in adolescent mice after chronic methylphenidate exposure. Association of Southeastern Biologists. Charleston, WV. 2013
27. Helton, A.K.* , **Ross, J.M.**, Schulz, J., Lloyd, S.A., & Shanks, R.A. Quantitative PCR analysis of the effects of methamphetamine abuse on the expression of the PRX family of proteins in dopaminergic regions of the brain. North Georgia Annual Research Conference. Dahlonega, GA. 2012
28. Tavares, C.*, Schulz, J., **Ross, J.M.**, Helton, A.K., Lloyd, S.A., & Shanks, R.A. Does Adolescent Exposure to Methylphenidate Elicits Changes in Δ FosB expression? A Possible Underlying Mechanism of Cross-Sensitization. North Georgia Annual Research Conference, Dahlonega, GA. 2012
29. Smudde, R.* , **Ross, J.M.**, Dawson, B.L., Racial bias in mock juror decisions involving sexual harassment of African Americans and Latinas: An analysis of perceptions of the defendant. Georgia Sociological Association Conference. Dahlonega, GA. 2012

Oral Conference Presentations:

* Denotes presenting author

1. **Ross, J.M.** and Hamm, J.P.* Emergence of Coordinated Neuronal Ensembles Across Adolescence in Neocortical Microcircuits. Society for Biological Psychiatry conference. Virtual. 2021
2. **Ross, J.M.*** and Fletcher, M.L. Olfactory fear learning-induced changes in mitral cell coding. [Part of Invited Symposium: Be Afraid. Be Very Afraid. Aversive Learning in the Chemical Senses] International Symposium on Olfaction and Taste. Portland, OR. 2020
3. **Ross, J.M.*** and Fletcher, M.L. Olfactory fear learning-induced olfactory bulb plasticity: Possible mechanisms of fear generalization. Quarterly Scientific Meeting. Memphis, TN. 2019
4. **Ross, J.M.***, Doyle, H.H., Picou, B.D., Schulz, J., Tavares, C., Bryant, S., Helton, A.K., Lloyd, S.A., Shanks, R.A., & Dawson, B. L. The effects of adolescent exposure to psychostimulants on cross-sensitization to methamphetamine in adulthood are drug and sex specific. Association of Southeastern Biologists. Charleston, WV. 2013
5. **Ross, J.M.***, Doyle, H.H., Picou, B.D., Schulz, J., Tavares, C., Bryant, S., Helton, A.K., Lloyd, S.A., Shanks, R.A., & Dawson, B. L. The effects of adolescent exposure to psychostimulants on cross-sensitization to methamphetamine in adulthood are drug and sex specific. North Georgia Annual Research Conference. Dahlonega, GA. 2013
6. Helton, A.K.* , **Ross, J.M.**, Schulz, J., Lloyd, S.A., & Shanks, R.A. Quantitative PCR analysis of the effects of methamphetamine abuse on the expression of the PRX family of proteins in dopaminergic regions of the brain. Association of Southeastern Biologists. Charleston, WV. 2012
7. **Ross, J.M.***, Helton, A.K., Lloyd, S.A. & Shanks, R.A. FUSEing behaviours and mechanisms. North Georgia Faculty-Undergraduate Summer Engagement Presentation. Dahlonega, GA. 2012

Seminars and Special Lectures:

1. Emergence of Coordinated Neuronal Ensembles Across Adolescence in Neocortical Microcircuits. Neuroscience Institute Summer Seminar Series. Georgia State University. July 9, 2021

Mass Communication:

1. **Ross, J.M.** (2021) "443 Days Later, This Postdoc Gets To See Her Daughter and Go Back to Her Lab." The Xylom. <https://www.thexylom.com/post/443-days-later-this-postdoc-gets-to-see-her-daughter-and-go-back-to-her-lab>

Society Memberships:

National Postdoctoral Association, Affiliate
American Association for the Advancement of Science
Society for Neuroscience
Association for Chemoreception Sciences
Psi Chi
Omicron Delta Kappa

Teaching

Formal Teaching: Single Lectures and Partial Courses

High school Teaching:

St. Benedict at Auburndale, Cordova TN

Honors Anatomy & Physiology	Special Topic: <i>What does the brain know and how do we know?: Understanding and applying the scientific method</i>	Spring 2018
Honors Anatomy & Physiology	Special Topic: <i>What does the brain know and how do we know?: Historical and anatomical perspectives</i>	Spring 2017

Undergraduate Teaching:

University of North Georgia, Dahlonega GA

PSYC/BIOL 4230L	Neuroscience Lab Assistant for Undergraduates	Spring 2013
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Graduate Teaching:

University of Tennessee Health Science Center, Memphis TN

DANA 103	Neuroanatomy Lab Assistant for D1 Dental Students	2017-2019
ANAT 442	Neuroanatomy Lab Assistant for Occ. Therapy Students	2015-2019
NEUR 212	Neuroanatomy Lab Assistant for M2 Medical Students	2015-2019
ANAT 841	Behavioral Neuroscience, Topic: Aversive learning	Fall 2018

Georgia State University, Atlanta GA

NEUR 8000	Introduction to Neuroscience: Olfaction	Fall 2021
NEUR 6410	Sensation and Perception: Olfaction	Spring 2022
NEUR 8000	Introduction to Neuroscience: Chemical Senses	Fall 2020

Formal Teaching: Instructor of Record

High school Teaching:

<i>Georgia State University Center for Behavioral Neuroscience: The Neuroscience School (summer camp)</i>		
(Online) Neuroscience Bootcamp		2022, 2023
(Online) Advanced Topics in Neuroscience II		2022, 2023
(In-person) Neuroscience Bootcamp		2023
(In-person) Advanced Topics in Neuroscience I		2023

Undergraduate Teaching:

Georgia State University, Atlanta GA

NEUR 4920	Internship in Neuroscience	Spring 2022-present
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Supervisory Training:

High school students:

2018	Madeline Matheson; B.S. Cell/Cellular and Molecular Biology, Pre-Pharmacy, Auburn University 2022, PharmD Candidate UTHSC-Memphis; supervised from January 2018-August 2019
2017	Meghan Tuttle; B.S. Nutrition and Dietetics at University of Mississippi 2021; supervised from May 2017-August 2017

Undergraduate students:

2023-	Joseph Wargo, pursuing B.S. in Neuroscience, Georgia State University
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Masters students:

2022-	Pengbo 'Ben' Hu, Bachelors Cognitive Science, Pomona College, 2021; pursuing M.A. Philosophy, Georgia State University
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Service and Community Engagement

Departmental Service:

1. Neuroscience Institute Data Analysis Club founding member and Co-Organizer, Georgia State University, Atlanta GA. Fall 2021-present
2. GSU Neurogenetics Laboratory (NEUR 4002) Poster Judge, Atlanta, GA. December 9, 2021

University Service:

1. Academic Careers in Neuroscience Panel [Invited panel discussion] NGSa at Georgia State University, Atlanta, GA. Spring 2023
2. Scientific Computing Day Poster Judge, Atlanta GA, September 29, 2022
3. Organized Inaugural GSU Postdoctoral Symposium, September 23, 2022
4. Georgia State University Postdoctoral Association founding member and Co-Chair, Atlanta GA. Fall 2021-present

5. Georgia State Undergraduate Research Conference (GSURC) Poster Judge, Georgia State University, Atlanta GA. Spring 2020
6. Career Development for Academia. [Invited panel discussion] GSEC at University of Tennessee Health Science Center. Memphis, TN. September 23rd, 2020
7. How to Read and Write Scientifically. [Invited panel discussion] oSTEM at Georgia State University. Petit Science Center, Georgia State University, Atlanta, GA. 2019

External Service:

1. 9th Annual BRAIN Initiative Investigators Meeting Program Committee; Bethesda, MD, 2023

Community Engagement:

1. Brain Awareness Week, 6th grade, Lindley 6th Grade Academy, Mableton, GA. 2023
2. Brain Awareness Week, 6th grade, Lindley 6th Grade Academy, Mableton, GA. 2022
3. Brain Awareness Week, 4th grade, King Springs Elementary School, Smyrna, GA. 2022
4. AChemS Community Outreach Special Topic: *What does your nose know about taste?*, 3rd grade, Imaginarium Hands on Museum and Aquarium, Fort Myers, FL. 2018
5. AChemS Community Outreach Special Topic: *What does your nose know about taste?*, 3rd grade, Imaginarium Hands on Museum and Aquarium, Fort Myers, FL. 2017
6. UTHSC Brain Awareness Day: *Drugs change the brain, but not in a good way.* Community outreach event open to high schoolers. Memphis, TN. 2016
7. AChemS Community Outreach Special Topic: *We eat with our eyes: The effect of visual cues on flavor perception*, 3rd grade, Franklin Park Elementary School, Fort Myers, FL. 2016
8. Brain Awareness Week Special Topic: *Evolution of Neuroanatomy for Sensory Systems*, 7th and 8th grade, Bellevue Middle School, Memphis, TN. 2015
9. Brain Awareness Week Special Topic: *Flavor through Integration of Taste and Smell*, 7th and 8th grade, Bellevue Middle School, Memphis, TN. 2015