

SYDNEY E. ASHTON

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EDUCATION

- 2017 – **Ph.D. in Neuroscience** | University of Maryland School of Medicine, Baltimore, MD
- 2013 – 2017 **B.S. in Biology with Distinction** | James Madison University, Harrisonburg, VA. *Cum laude*, Honors College

RESEARCH EXPERIENCE

- 2018 – **Graduate Research Assistant**, University of Maryland School of Medicine
Faculty Advisor: Margaret McCarthy, Ph.D.
Dissertation: *At the intersection of genetics & environment: Longitudinal characterization of behavior across the lifespan in a novel two-hit rat model of neuropsychiatric developmental disorders*
- 2015 – 2017 **Honors Thesis Student**, James Madison University
Faculty Advisor: M. Rockwell Parker, Ph.D.
Thesis: *Sex and seasonal differences in mRNA expression of sex steroid hormone receptors in the red-sided garter snake (*Thamnophis sirtalis parietalis*)*

HONORS AND AWARDS

- 2022 – 2023 **Visiting Fellows in Neuroscience Research Fellowship**
University of Maryland College Park, College Park, MD
Faculty Advisor: Matthew Roesch, Ph.D.
- November 2021 **Trainee Professional Development Award**
Society for Neuroscience
- Fall 2021 **Collaborative Teaching Fellow**
Johns Hopkins University Teaching Academy
- May 2021 **First-Time Attendee Award**
Organization for the Study of Sex Differences
- January 2021 **Trainee Professional Development Award**
Society for Neuroscience
- 2020 – 2021 **AAAS/Science Program for Excellence in Science**
American Association for the Advancement of Science
- 2017 – 2019 **Competitive Institutional Training Grant**
Training Program in Neuroscience T32NS063391, University of Maryland School of Medicine, Baltimore, MD
- January 2017 **Charlotte Mangum Support Award**
Society for Integrative and Comparative Biology, New Orleans, LA
- Fall 2016 **Honors Teaching Fellow**
James Madison University, Harrisonburg, VA
- October 2016 **Best Student Presentation, First Place**
UMBC Undergraduate Research Symposium in the Chemical and Biological Sciences, Baltimore, MD

- 2013 – 2017 **Madison Achievement Award for Academic Excellence**
James Madison University, Harrisonburg, VA
- Summer 2012 **Governor’s Honors Academy of West Virginia**
The State of West Virginia and the West Virginia Department of Education, West Virginia University, Morgantown, WV

PUBLICATIONS

VanRyzin, JW, SE Arambula, **SE Ashton**, AC Blanchard, MD Burzinski, KT Davis, S Edwards, EL Graham, A Holley, KE Kight, AE Marquardt, M Perez-Pouchoulen, LA Pickett, EL Reindl and MM McCarthy. (2021). Generation of an Iba1-eGFP transgenic rat for the study of microglia in an outbred rodent strain. *eNeuro*.
*Acquired microscopy image featured on eNeuro’s homepage “cover slide”

VanRyzin, JW, AE Marquardt, KJ Argue, HA Vecchiarelli, **SE Ashton**, SE Arambula, MN Hill, and MM McCarthy. (2019). Microglial Phagocytosis of Newborn Cells Is Induced by Endocannabinoids and Sculptures Sex Differences in Juvenile Rat Social Play. *Neuron*.

Ashton, SE, BJ Vernasco, IT Moore, and MR Parker. (2018). Sex and seasonal differences in mRNA expression of estrogen receptor α (ESR1) in red-sided garter snakes (*Thamnophis sirtalis parietalis*). *General and comparative endocrinology*.

TALKS

SE Ashton. (2022). Characterization of behavior across the lifespan in a (not so good?) two-hit rat model of neuropsychiatric developmental disorders. Department of Psychology Cognitive Neural Systems Seminar. University of Maryland, College Park, MD.

SE Ashton. (2021). Work hard, play hard?: How the brain controls playfulness in young mammals. Department of Biology STEMinar. Stevenson University, Owings Mills, MD.

SE Ashton & MM McCarthy. (2021). Working for play: Using a new behavioral task to interrogate the role of the brain’s reward circuitry in driving the motivation to play in juvenile rats. 43rd Annual Graduate Research Conference. University of Maryland, Baltimore.

SE Ashton. (2020). Sex differences in the brain’s reward system and playfulness in young rats. Graduate School Three Minute Thesis. University of Maryland, Baltimore, virtual.

SE Ashton & MR Parker. (2017). Searching for sex differences in snake skin. 57th Annual Meeting of the Society of Integrative and Comparative Biology. New Orleans, LA.

POSTER PRESENTATIONS

SE Ashton, P Sharalla, N Kang, AT Brockett, MR Roesch and MM McCarthy (2022). Characterization of social and cognitive behaviors across the lifespan in a “two-hit” rat model of neuropsychiatric developmental disorders. 51st Annual Meeting of the Society for Neuroscience

SE Ashton, SN Yavasani, S Pattanaik, KE Kight and MM McCarthy (2021). Characterization of playfulness and social motivation in juvenile rats in a model of neuropsychiatric developmental disorders. 50th Annual Meeting of the Society for Neuroscience.

SE Ashton & MM McCarthy. (2021). Measuring motivation for social interaction in a rat model of neuropsychiatric developmental disorders. 25th Meeting of the Society for Behavioral Neuroendocrinology.

SE Ashton & MM McCarthy. (2021). A novel assay for assessing motivation for social interaction in juvenile rats. 15th Annual Meeting of the Organization for the Study of Sex Differences.

SE Ashton, JW VanRyzin & MM McCarthy. (2021). Sex differences in activation of reward-related brain circuitry during juvenile rat social play. Society for Neuroscience Global Connectome.

SE Ashton, JW VanRyzin & MM McCarthy. (2020). Sex differences in reward-related brain circuitry and their involvement in juvenile rat social play. 24th Annual Meeting of the Society for Behavioral Neuroendocrinology, Atlanta, GA. *Canceled due to COVID-19*.

SE Ashton & MM McCarthy. (2019). Investigating developmental origins of sex differences in the rewarding properties of juvenile rat social play. 49th Annual Meeting of the Society for Neuroscience, Chicago, IL.

MM McCarthy, JW VanRyzin, KE Kight, EL Reinl, AE Marquardt, SE Arambula, **SE Ashton**, KT Davis, LA Pickett, and A Holley. (2019). Characterization of a CRISPR-generated rat model containing eGFP-Iba1 for study of microglia. 49th Annual Meeting of the Society for Neuroscience, Chicago, IL.

SE Ashton & MM McCarthy. (2019). Exploring sex differences in the rewarding properties of juvenile rat social play. 22nd Annual Neuroscience Retreat, Baltimore, MD.

SE Ashton & MM McCarthy. (2019). Exploring sex differences in the rewarding properties of juvenile rat social play. Sex Differences, Dimorphisms, Divergences: Impact on Brain and Behavior in Health and Disease, Erice, Italy.

SE Ashton & MR Parker. (2017). Searching for sex differences in snake skin. Joint Meeting of Ichthyologists and Herpetologists, New Orleans, LA.

SE Ashton & MR Parker. (2016). Searching for sex differences in snake skin. 19th Annual UMBC Undergraduate Research Symposium in the Chemical and Biological Sciences, Baltimore, MD.

MEMBERSHIP IN PROFESSIONAL SOCIETIES

2021 –	Organization for the Study of Sex Differences
2020 –	Society for Behavioral Neuroendocrinology
2020 –	American Association for the Advancement of Science
2017 –	Society for Neuroscience
2016 – 2017	Society for Integrative and Comparative Biology

TEACHING EXPERIENCE

Fall 2021	Teaching Fellow BIO 113HL: <i>Honors - General Biology I Lab</i> , Stevenson University
Fall 2020	Teaching Assistant GPLS 739: <i>Proseminar in Experimental Design</i> , University of Maryland School of Medicine
Fall 2020	Teaching Assistant BIO 445: <i>Neurobiology</i> , James Madison University
2015 – 2017	Biology Tutor BIO 114: <i>Organisms</i> , BIO 123: <i>Ecology and Evolution</i> , BIO 214: <i>Cell and Molecular Biology</i> , James Madison University
Fall 2016	Teaching Assistant BIO 110: <i>Freshman Symposium in Biology</i> , James Madison University
Fall 2016	Instructor HON 100: <i>Honors First Year Seminar</i> , James Madison University
Spring 2015	Teaching Assistant BIO 214L: <i>Cell & Molecular Biology Lab</i> , James Madison University

MENTORSHIP

2022 – 2023	Naru Kang , University of Maryland College Park, College Park, MD
Summer 2021	Shriya Yavasani , Senior Internship Program, Poolesville High School, Poolesville, MD
Summer 2021, January 2022	Sragvi Pattanaik , Poolesville High School, Poolesville, MD & University of Maryland College Park, College Park, MD
Summer 2019	Soad Elziny , PhD Program in Neuroscience Rotation Student, University of Maryland School of Medicine

RELEVANT TRAINING & WORKSHOPS

Spring 2021	An Introduction to Evidence-Based Undergraduate STEM Teaching Center for the Integration of Research, Teaching and Learning (CIRTL)
April 2019	Nikon Advanced Image Analysis Course Nikon, Hosted at the University of Maryland School of Medicine, Baltimore, MD

SELECTED LEADERSHIP EXPERIENCE

2021 – 2022	Chair Graduate Assistant Advisory Committee with UMB President & Graduate School Leadership, University of Maryland, Baltimore
2021 – 2022	President Graduate Student Association, University of Maryland, Baltimore
2020 – 2021	Public Relations Officer Graduate Student Association, University of Maryland, Baltimore
2019 –	Brain Awareness Week Chair Neuroscience Outreach and Volunteer Association (NOVA), University of Maryland School of Medicine
2019 – 2020	Program in Neuroscience Representative Graduate Student Association, University of Maryland, Baltimore
Spring 2017	Service Committee Chair Beta Beta Beta National Biological Honor Society, James Madison University Psi Beta Chapter
2016 – 2017	Admissions Service Committee Chair Student Ambassadors, James Madison University
2015 – 2016	Membership Board Student Ambassadors, James Madison University

SELECTED UNIVERSITY SERVICE

2021 –	Graduate Student Representative UMB Core Values Implementation Steering Committee, University of Maryland, Baltimore
July 2021	Oral Session Moderator Summer Research Programs Student Research Forum, University of Maryland School of Medicine Office of Student Research
2021 – 2022	University of Maryland, Baltimore Representative University System of Maryland Student Council
June 2021	Presenter

Presentation on Graduate Assistantship Stipends and Budgets to the Deans of the Seven Schools and the President of the University of Maryland, Baltimore

- April 2021 **Oral Session Moderation**
43rd Annual Graduate Research Conference, University of Maryland, Baltimore
- 2019 – 2021 **Student Representative**
Graduate Assistant Advisory Committee with UMB President & Graduate School Leadership, University of Maryland, Baltimore
- 2020 – **Examiner**
Program in Neuroscience Mock Qualification Exams, University of Maryland School of Medicine
- 2019 – 2020 **Student Representative**
Program in Neuroscience Seminar Series Selection Committee, University of Maryland School of Medicine
- 2019 – **Ethics Leader**
Graduate School Orientation, University of Maryland School of Medicine
- 2019 **UMB Representative**
GBSfN Annual Meeting Planning Committee, Greater Baltimore SfN Chapter
- 2019 – **Committee Member**
Program in Neuroscience Student Training Committee, University of Maryland School of Medicine
- 2016 – 2017 **Member**
Beta Beta Beta National Biological Honor Society, James Madison University Psi Beta Chapter
- 2015 – 2016 **Membership Board**
Student Ambassadors, James Madison University
- 2015 – 2017 **Member**
Student Ambassadors, James Madison University

SELECTED COMMUNITY OUTREACH & SERVICE

- April 2022 **Invited Speaker**
BIO218 Career Connections in the Life Sciences, Stevenson University, Owings Mills, MD
- August 2021 **Volunteer**
Brain Camp hosted by the University of Maryland School of Medicine Center for Epigenetic Research in Child Health and Brain Development, Francis Scott Key Elementary/Middle School, Baltimore, MD
- July 2021 **Speaker**
Lunch and Learn Session on Advocacy, University of Maryland, Baltimore CURE Scholars Program, Baltimore, MD
- April 2021 **Panelist**
Biology and Biotechnology Career Panel, James Madison University, Harrisonburg, VA
- March 2021 **Judge**
"Health and Animal Science", 62nd Annual Shenandoah Valley Regional Science and Engineering Fair, Harrisonburg, VA
- December 2020 **Panelist**
"Medical Sciences", 8th Annual Maryland STEM Career Fair for Girls, Baltimore, MD
- March 2020 **Judge**

Annual Roland Park Middle School Science Fair, Baltimore City Public Schools,
Baltimore, MD

2019 – 2021

Mentor

Graduate School Mentorship Initiative for underrepresented students applying to STEM
PhD programs, Cientifco Latino

2019

Volunteer Scientist

Rural STEM Education Program, Johns Hopkins University and Winters Mill High School,
Westminster, MD

July 2019

Panelist

University of Maryland School of Medicine visit of the Howard University Bison STEM
Scholars, STAR-PREP (Science Training for Advancing Biomedical Research
Postbaccalaureate Research Education Program) Scholars and CURE (Continuing
Umbrella of Research Experiences) Scholars

October 2019

UMB Representative

7th Annual Maryland STEM Career Fair for Girls, The Bryn Mawr School, Baltimore, MD

2017 –

Member

Neuroscience Outreach and Volunteer Association (NOVA), University of Maryland
School of Medicine

2016 – 2017

Member

Herpetology Outreach Program (HOP), James Madison University