Katherine Furman

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Education

August 2019 – Present	**Ph.D. - University of Michigan** | Burgess Lab, Neuroscience Graduate Program
	Neuroscience Graduate Program, Ann Arbor, MI
	   o Thesis Mentor: Christian R. Burgess, Ph.D.
	   o Currently developing high-throughput mouse behavioral tracking setups to observe the effects of Melanin-Concentrating Hormone neurons of the Lateral Hypothalamus on consummatory behaviors

August 2015 – May 2019	**B.S. - New York University** | College of Arts and Sciences, New York, NY | *Cum Laude*
	Bachelor of Science Degree in Neural Science with High Honors, May 2019
	   o Honors Thesis: "Assessing behavioral relevance of pup ultrasonic vocalizations as a function of maternal experience" Advisor: Robert C. Froemke, PhD
	   o Neural Science Honors Scholar
	   o University Honors Scholar
	   o Chemistry Minor

September 2011 – May 2015	**A.S. - Raritan Valley Community College** | Branchburg, NJ | *Magna Cum Laude*
	Associate of Science Degree in General Science, May 2015
	   o Dually enrolled throughout all four years of high school
	   o Member of Phi Theta Kappa Honor Society

Research Experience

January 2020 – present	**PhD Candidate** | Michigan Neuroscience Institute
	   o **Laboratory of Dr. Christian R. Burgess, PhD**
	   o Dissertation project examines the role of Melanin-Concentrating Hormone (MCH) neurons in the mouse Lateral Hypothalamus in motivational aspects of consummatory behavior
	   o involves high-throughput behavioral tracking setups in combination with optogenetics and fiber photometry

September 2019- December 2019	**PhD Rotation Student** | Michigan Molecular & Behavioral Neuroscience Institute
	   o **Laboratory of Dr. Joanna Spencer-Segal, MD PhD**
	   o Rotation project examined the effects of diazepam on mouse anxiety-like behaviors
	   o Funded by NIH T-32 Early Stage Training in the Neurosciences Fellowship

January 2018 – May 2019	**BP-ENDURE Research Fellow** | NYU Skirball Institute for Biomolecular Medicine
	   o **Laboratory of Dr. Robert C. Froemke, PhD**
	   o Senior thesis project used Conditioned Place-Preference and Operant Conditioning paradigms to assess the preference of female mice for infant-related auditory cues, including pup ultrasonic vocalizations, dependent on maternal experience
	   o Funded by NIH Blueprint Program for Enhancing Neuroscience Diversity through Undergraduate Research Experiences & NYU Dean's Undergraduate Research Fund

June 2018 – August 2018	**BP-ENDURE Summer Research Fellow** | Yale University Department of Psychiatry
	   o **Laboratory of Dr. Marina R. Picciotto, PhD**
	   o Used fiber photometry to measure effects of cholinergic systems on inhibitory neuron activity in subtypes of interneurons in the basolateral amygdala of mice during stress-related behaviors
	   o Funded by NIH Blueprint Program for Enhancing Neuroscience Diversity through Undergraduate Research Experiences (BP-ENDURE)

June 2017 – August 2017	**BP-ENDURE Summer Research Fellow** | University of Michigan Molecular & Behavioral Neuroscience Institute o **Laboratory of Dr. Jill B. Becker, PhD**

o   Used Fast-Scan Cyclic Voltammetry in anaesthetized rats to investigate sex-differences in selective estrogen receptor subtype involvement in cocaine-induced dopamine release in the nucleus accumbens
o   Funded by NIH Blueprint Program for Enhancing Neuroscience Diversity through Undergraduate Research Experiences (BP-ENDURE)

January 2016 – December 2017	**Student Research Assistant** | NYU Center for Neural Science

o   **Laboratory of Dr. Cristina Alberini, PhD**
o   Main project involved characterizing expression of insulin-like growth factor II mRNA through in-situ hybridization, with the goal of understanding mechanisms by which it promotes memory consolidation
o   Subprojects include extensive use of Neurolucida360 to analyze dendritic spine density of hippocampal cell cultures

Teaching Experience

Fall 2019, Winter 2020, Fall 2020, Winter 2021	**Python for Data Science** | Girls Who Code @ UM Dept. of Comp. Medicine & Bioinformatics

o   Worked with a team of PhD students to develop a curriculum and instructional format using Jupyter notebooks to effectively teach introductory Python for data science
o   Taught this curriculum to a class of high school women for two academic years
o   Experience teaching both in-person and virtually due to the COVID-19 pandemic

August 2020	**Introduction to MATLAB** | U of M Neuroscience Graduate Program Bootcamp

o   Developed a week-long curriculum to teach introductory MATLAB programming to incoming PhD Students
o   Taught these lessons to students in a virtual format due to COVID-19 pandemic

Awards, Scholarships & Grants

September 2020- August 2021	**NIDA T-32 Training Program in the Neurosciences** | U of M Neuroscience Graduate Program

o   Awarded this competitive fellowship to to fully fund one year of my PhD research involving the motivational aspects of feeding circuitry under Dr. Christian Burgess

September 2019-August 2020	**NIH T-32 Early Stage Training in the Neurosciences Fellowship** | U of M Neuroscience Graduate Program

o   Awarded trainee fellowship by Neuroscience Graduate Program Directors for financial support in the first year of graduate school

May 2019	**Best Research Talk Award** | NYU Undergraduate Research Conference

o   Awarded by members of NYU Faculty of Arts and Sciences
o   Title: *"Nature Versus Nurture: Maternal Responses to Infant Distress Cues"* Authors: **Katherine L. Furman**, Robert C. Froemke

April 2019	**NSF Graduate Research Fellowship Program – Honorable Mention**

o   As a senior undergraduate, received an Honorable Mention as recognition for an excellent NSF GRFP application

April 2019	**NYU University Honors Scholar**

o   Recognized as a University-wide Honors Scholar, recognition given to those students within the top 40% of their graduating class

April 2019	**Sherrington Award for Neural Science Research** | NYU Center for Neural Science

o   First place thesis prize for undergraduate research in Neural Science
o   Thesis title: "Assessing behavioral relevance of pup ultrasonic vocalizations as a function of maternal experience" Advisor: Robert Froemke
o   Selected by faculty members within the Center for Neural Science as the sole recipient of this prestigious award among all undergraduate honors theses submitted

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June 2017 –
May 2019
	NIH Blueprint Program for Enhancing Neuroscience Diversity through Undergraduate Research Experiences (BP-ENDURE) | NYU/Hunter College - New York, NY
	   o Extremely competitive program, through which trainees receive 2 years of research funding from an NIH initiative to promote training and success in neuroscience among undergraduates from diverse backgrounds
	   o Received two years of funded travel to present at the Society for Neuroscience, as well as other conferences and professional opportunities
	   o Attended weekly professional development seminars

February 2019	**Dean's Opportunity Fund for Graduate School |** NYU College of Arts & Science o Selected from a competitive applicant pool to receive funding for graduate school application-related fees

February 2019	**First Place Prize – ERN Video Competition |** Emerging Researchers National Conference
	   o Animated, filmed, and produced a 3-minute video detailing senior thesis work.
	   o Selected for a first place prize from hundreds of applicants across the country.
	   o Awarded travel funding to the Emerging Researchers National Conference, as well as AAAS Membership.
	   o Video Title: *How do mothers learn to respond to their child's cry?* (Can be viewed here: https://vimeo.com/289799744)

Fall 2018	**Student Travel Award Program |** ABRCMS 2018
	   o Selected from a competitive application pool to receive travel funding for the 2018 Annual Biomedical Research Conference for Minority Students in Indianapolis, IN
	   o Awarded by ABRCMS internal selection committee
	   o Oral Presentation Title: *"Behavioral preference for pup ultrasonic vocalizations in female mice"* Authors: Katherine L. Furman, Ioana Carcea, Robert C. Froemke

Fall 2018	**Dean's Undergraduate Research Conference Grant |** NYU College of Arts & Science
	   o Awards travel funding for undergraduate researchers to present at conferences
	   o Applied and was awarded funding for airfare and registration for ABRCMS 2018

May 2018	**Best Poster Presentation Award |** NYU Undergraduate Research Conference
	   o Awarded by members of NYU Faculty of Arts and Sciences
	   o Poster Title: *"Behavioral preference for pup ultrasonic vocalizations in female mice"* Authors: **Katherine L. Furman**, Ioana Carcea, Robert C. Froemke

Spring 2018	**Dean's Undergraduate Research Fund |** NYU College of Arts & Sciences
	   o Awards research grants to students with outstanding research proposals, displaying the skills necessary to pursue their own research
	   o 2018 Robert Selander Research Scholar, an honor awarded to young researchers with excellent research proposals
	   o Project Title: "Oxytocin-Dependent Behavioral Preference for Pup Calls in Female Mice" (mentored by Robert C. Froemke)

September 2016 – May 2019	**Irving H. Jurow Scholarship |** New York University o Awarded to students of the College of Arts and Sciences who display outstanding academic achievement
Fall 2017	**Barry M. Goldwater Scholarship |** Departmental Nominee o Nominated by the NYU Center for Neural Science as one of two outstanding candidates for the Barry M. Goldwater Scholarship

Publications

2021, in preparation	Journal of Open Source Education. *Teaching Python for Data Science: Collaborative development of a modular & interactive curriculum.* Marlena Duda, Kelly L. Sovacool, Negar Farzaneh, Vy Nguyen, Sarah Haynes, Hayley Falk, **Katherine L. Furman**, Logan Walker, Rucheng Diao, Morgan Oneka, Audrey Drotos, Alana Woloshin, Gabrielle Dotson, April Kriebel, Lucy Meng, Stephanie Thiede, Shweta Ramdas, Zena Lapp, Brooke N. Wolford.

Presentations

Research Talk; February 15, 2021	**University of Michigan Neuroscience Seminar Series |** Talk delivered virtually *"Life gives you lemons, you pass them down: Paternally transmitted intergenerational stress through reproductive tract extracellular vesicles"* **Katherine L. Furman**
Invited Talk; July 23, 2020	**Florida Atlantic University – Summer REU |** Talk delivered virtually *"My life as a Neuroscientist"* **Katherine L. Furman**
Research Talk; May 3rd, 2019	**NYU College of Arts & Sciences Undergraduate Research Conference|** New York, NY *"Nature versus Nurture: Maternal Responses to Infant Distress Cues"* **Katherine L. Furman**, Robert C. Froemke
Research Talk; April 26th, 2019	**NYU Center for Neural Science Undergraduate Research Festival|** New York, NY *"Nature versus Nurture: Maternal Responses to Infant Distress Cues"* **Katherine L. Furman**, Robert C. Froemke
Research Talk; February 21st, 2019	**Emerging Researchers National (ERN) Conference |** Washington, DC *"Behavioral preference for pup ultrasonic vocalizations in female mice"* **Katherine L. Furman**, Adam Mar, Ioana Carcea, Robert C. Froemke (invited to present, but unable to attend)
Research Talk; November 15th, 2018	**Annual Biomedical Research Conference for Minority Students |** Indianapolis, IN *"Behavioral preference for pup ultrasonic vocalizations in female mice"* **Katherine L. Furman**, Adam Mar, Ioana Carcea, Robert C. Froemke
Poster Presentation; November 6th, 2018	**Society for Neuroscience 48th Annual Meeting |** San Diego, CA *"Assessing behavioral preference for mouse pup calls as a function of maternal experience and oxytocin signaling"* **Katherine L. Furman**, Adam Mar, Ioana Carcea, Robert C. Froemke
Poster Presentation; November 3rd, 2018	**8th Annual ENDURE Meeting @ Society for Neuroscience|** San Diego, CA *"in-vivo optical recording of BLA inhibitory interneuron activity during stress-related behaviors"* **Katherine L. Furman**, Steven Pittenger, Richard Crouse, Marina R. Picciotto
Research Talk; August 2nd, 2018	**Summer Research Symposium |** Yale University – New Haven, CT *"Which types of inhibitory neurons influence depressive behaviors?"* Oral presentation by Katherine L. Furman
Poster Presentation; August 2nd, 2018	**Summer Research Symposium |** Yale University – New Haven, CT *"in-vivo optical recording of BLA inhibitory interneuron activity during stress-related behaviors"* **Katherine L. Furman**, Steven Pittenger, Richard Crouse, Marina R. Picciotto
Poster Presentation; May 5th, 2018	**Undergraduate Research Conference |** NYU College of Arts & Sciences *"Behavioral preference for pup ultrasonic vocalizations in female mice"* **Katherine L. Furman**, Ioana Carcea, Robert C. Froemke

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Poster Presentation; April 27th, 2018	**Undergraduate Research Festival** | NYU Center for Neural Science *"Sex-differences in the effect of estradiol on cocaine-induced dopamine release: Role of selective estrogen receptors"* **Katherine L. Furman**, Katie E. Yoest, Jennifer A. Cummings, Brandon J. Aragona, Jill B. Becker
Poster Presentation; April 25th, 2018	**Under-Graduate Research Conference** | Hunter College - New York, NY *"Sex-differences in the effect of estradiol on cocaine-induced dopamine release: Role of selective estrogen receptors"* **Katherine L. Furman,** Katie E. Yoest, Jennifer A. Cummings, Brandon J. Aragona, Jill B. Becker
Poster Presentation; November 11th, 2017	**Society for Neuroscience 47th Annual Meeting** | Washington, D.C. *"Sex-differences in the effect of estradiol on cocaine-induced dopamine release: Role of selective estrogen receptors"* **Katherine L. Furman**, Katie E. Yoest, Jennifer A. Cummings, Brandon J. Aragona, Jill B. Becker
Poster Presentation; August 9th, 2017	**Summer Research Symposium** | University of Michigan - Ann Arbor, MI *"Sex-differences in the effect of estradiol on cocaine-induced dopamine release: Role of selective estrogen receptors"* **Katherine L. Furman**, Katie E. Yoest, Jennifer A. Cummings, Brandon J. Aragona, Jill B. Becker

Service & Outreach

October 2020- September 2021	**Neuroscience Graduate Student Organization – Social Chair|** University of Michigan o Serve on the Executive Board of the Neuroscience Graduate Student Organization, which helps to plan events and activities for Neuroscience Graduate Students. o As Outreach Chair, I lead the planning of creative, virtually-delivered social activities during the COVID-19 pandemic
September 2019 – Present	**Girls Who Code** | Executive Committee Member, University of Michigan Chapter o Girls Who Code is an organization which seeks to teach young girls how they can use programming as a valuable skill in their lives and careers, while providing representation of women succeeding in STEM careers o As an Executive Committee member, I help organize the club, and meet weekly with a group of girls to coach them through a programming Capstone Project
August 2020 – Present	**Michigan NGP Recruitment & Admissions Task Force** | Graduate Student Member o One of four Neuroscience Graduate Program students to serve on this Task Force with the goal of making the program's recruitment and admissions process more equitable and inclusive o Organized virtual Open House events for students from various undergraduate institutions to learn about our admissions process
September 2020 – Present	**UM, Speaking of Science** | Organizing Committee o Attended Improv classes at Pointless School of Improv in Ann Arbor, MI o Used Improvisational techniques to develop and teach a curriculum in science communication skills for fellow graduate students & faculty.
October 2019- September 2020	**Neuroscience Graduate Student Organization – Outreach Chair|** University of Michigan o Serve on the Executive Board of the Neuroscience Graduate Student Organization, which helps to plan events and activities for Neuroscience Graduate Students. o As Outreach Chair, I led the planning of neuroscience-related outreach events for the University of Michigan and greater Ann Arbor communities.

Winter 2020	**BrainsRule! – Volunteer Committee** | University of Michigan
	o Helped recruit volunteers across various departments, organizations, and levels of expertise to volunteer at the 2020 UM BrainsRule! event
	o BrainsRule! is an annual outreach event where students, staff, and faculty at UM teach local middle schoolers about various aspects of neuroscience
	o *event cancelled due to COVID-19 pandemic*
May 2017 – May 2019	**Society for Undergraduate Neural Science** | Vice President, NYU Chapter
	o Work with a team of executive board members to plan and organize events of various categories, including academic, professional development, social, and travel events for undergraduates interested in Neuroscience
	o Correspond with faculty advisors and guest-speakers
	o Outreach to the NYU and NYC Neuroscience community
September 2017 – May 2019	**Neural Science Peer Mentor** | NYU Center for Neural Science
	o Act as a peer mentor, sharing knowledge and experiences of my own to educate and advise six different freshman and sophomore mentees
Spring 2017 – Spring 2019	**Undergraduate Research Festival Planning Committee** | NYU Center for Neural Science
	o Helped found the event, and served on the planning committee for the first, second and third annual Center for Neural Science Undergraduate Research Festival
	o Coordinated and Planned the conference with a team of peers and faculty advisors
	o Served as a liaison between presenters and administrators

Memberships & Affiliations

- o Society for Neuroscience
- o American Association for the Advancement of Science (AAAS)

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