

# Katherine Furman

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## Education

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- August 2019 – Present      **Ph.D. - University of Michigan** | Burgess Lab, Neuroscience Graduate Program  
Neuroscience Graduate Program, Ann Arbor, MI
- Thesis Mentor: Christian R. Burgess, Ph.D.
  - 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
- Honors Thesis: “Assessing behavioral relevance of pup ultrasonic vocalizations as a function of maternal experience” Advisor: Robert Froemke, PhD
  - Neural Science Honors Scholar
  - University Honors Scholar
  - 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
- Dually enrolled throughout all four years of high school
  - Member of Phi Theta Kappa Honor Society

## Research Experience

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- January 2020 – present      **PhD Candidate** | Michigan Neuroscience Institute
- **Laboratory of Dr. Christian R. Burgess, PhD**
  - Dissertation project examines the role of Melanin-Concentrating Hormone (MCH) neurons in the mouse Lateral Hypothalamus in motivational aspects of consummatory behavior
  - 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
- **Laboratory of Dr. Joanna Spencer-Segal, MD PhD**
  - Rotation project examined the effects of diazepam on mouse anxiety-like behaviors
  - 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
- **Laboratory of Dr. Robert C. Froemke, PhD**
  - 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
  - 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
- **Laboratory of Dr. Marina R. Picciotto, PhD**
  - 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
  - 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
- **Laboratory of Dr. Jill B. Becker, PhD**
  - Used Fast-Scan Cyclic Voltammetry in anesthetized rats to investigate sex-differences in selective estrogen receptor subtype involvement in cocaine-induced dopamine release in the nucleus accumbens
  - 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
- **Laboratory of Dr. Cristina Alberini, PhD**
  - 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
  - Subprojects include extensive use of Neurolucida360 to analyze dendritic spine density of hippocampal cell cultures

## Teaching Experience

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- August 2020      **Introduction to MATLAB** | U of M Neuroscience Graduate Program
- Developed a week-long curriculum to teach introductory MATLAB programming to incoming PhD Students
  - Taught these lessons to students in a virtual format due to COVID-19 pandemic

## Awards, Scholarships & Grants

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- September 2020-August 2021      **NIDA T-32 Training Program in the Neurosciences** | U of M Neuroscience Graduate Program
- Awarded this competitive fellowship to fund 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
- 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
- Awarded by members of NYU Faculty of Arts and Sciences
  - 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**
- As a senior undergraduate, received an Honorable Mention as recognition for an excellent NSF GRFP application
- April 2019      **NYU University Honors Scholar**
- 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
- First place thesis prize for undergraduate research in Neural Science
  - Thesis title: *"Assessing behavioral relevance of pup ultrasonic vocalizations as a function of maternal experience"* Advisor: Robert Froemke

- Selected by faculty members within the Center for Neural Science as the sole recipient of this prestigious award among all undergraduate honors theses submitted
- June 2017 – May 2019

**NIH Blueprint Program for Enhancing Neuroscience Diversity through Undergraduate Research Experiences (BP-ENDURE) | NYU/Hunter College - New York, NY**

  - 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
  - Received two years of funded travel to present at the Society for Neuroscience, as well as other conferences and professional opportunities
  - Attended weekly professional development seminars
- February 2019

**Dean's Opportunity Fund for Graduate School | NYU College of Arts & Science**

  - 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**

  - Animated, filmed, and produced a 3-minute video detailing senior thesis work.
  - Selected for a first place prize from hundreds of applicants across the country.
  - Awarded travel funding to the Emerging Researchers National Conference, as well as AAAS Membership.
  - 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**

  - Selected from a competitive application pool to receive travel funding for the 2018 Annual Biomedical Research Conference for Minority Students in Indianapolis, IN
  - Awarded by ABRCMS internal selection committee
  - 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**

  - Awards travel funding for undergraduate researchers to present at conferences
  - Applied and was awarded funding for airfare and registration for ABRCMS 2018
- May 2018

**Best Poster Presentation Award | NYU Undergraduate Research Conference**

  - Awarded by members of NYU Faculty of Arts and Sciences
  - 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**

  - Awards research grants to students with outstanding research proposals, displaying the skills necessary to pursue their own research
  - 2018 Robert Selander Research Scholar, an honor awarded to young researchers with excellent research proposals
  - 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**

  - Awarded to students of the College of Arts and Sciences who display outstanding academic achievement

Fall 2017

**Barry M. Goldwater Scholarship** | Departmental Nominee

- Nominated by the NYU Center for Neural Science as one of two outstanding candidates for the Barry M. Goldwater Scholarship

## **Publications & Presentations**

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| Invited Talk;<br>July 23, 2020                          | <b>Florida Atlantic University – Summer REU</b>   Talk delivered virtually<br><i>“My life as a Neuroscientist”</i> <b>Katherine L. Furman</b>   |
| Research Talk;<br>May 3 <sup>rd</sup> , 2019            | <b>NYU College of Arts &amp; Sciences Undergraduate Research Conference</b>   New York, NY<br><i>“Nature versus Nurture: Maternal Responses to Infant Distress Cues”</i> <b>Katherine L. Furman</b> , Robert C. Froemke   |
| Research Talk;<br>April 26 <sup>th</sup> , 2019         | <b>NYU Center for Neural Science Undergraduate Research Festival</b>   New York, NY<br><i>“Nature versus Nurture: Maternal Responses to Infant Distress Cues”</i> <b>Katherine L. Furman</b> , Robert C. Froemke  |
| Research Talk;<br>February 21 <sup>st</sup> , 2019      | <b>Emerging Researchers National (ERN) Conference</b>   Washington, DC<br><i>“Behavioral preference for pup ultrasonic vocalizations in female mice”</i> <b>Katherine L. Furman</b> , Adam Mar, Ioana Carcea, Robert C. Froemke (invited to present, but unable to attend)                                    |
| Research Talk;<br>November 15 <sup>th</sup> , 2018      | <b>Annual Biomedical Research Conference for Minority Students</b>   Indianapolis, IN<br><i>“Behavioral preference for pup ultrasonic vocalizations in female mice”</i> <b>Katherine L. Furman</b> , Adam Mar, Ioana Carcea, Robert C. Froemke  |
| Poster Presentation;<br>November 6 <sup>th</sup> , 2018 | <b>Society for Neuroscience 48<sup>th</sup> Annual Meeting</b>   San Diego, CA<br><i>“Assessing behavioral preference for mouse pup calls as a function of maternal experience and oxytocin signaling”</i> <b>Katherine L. Furman</b> , Adam Mar, Ioana Carcea, Robert C. Froemke                             |
| Poster Presentation;<br>November 3 <sup>rd</sup> , 2018 | <b>8<sup>th</sup> Annual ENDURE Meeting @ Society for Neuroscience</b>   San Diego, CA<br><i>“in-vivo optical recording of BLA inhibitory interneuron activity during stress-related behaviors”</i> <b>Katherine L. Furman</b> , Steven Pittenger, Richard Crouse, Marina R. Picciotto                        |
| Research Talk;<br>August 2 <sup>nd</sup> , 2018         | <b>Summer Research Symposium</b>   Yale University – New Haven, CT<br><i>“Which types of inhibitory neurons influence depressive behaviors?”</i> Oral presentation by Katherine L. Furman   |
| Poster Presentation;<br>August 2 <sup>nd</sup> , 2018   | <b>Summer Research Symposium</b>   Yale University – New Haven, CT<br><i>“in-vivo optical recording of BLA inhibitory interneuron activity during stress-related behaviors”</i> <b>Katherine L. Furman</b> , Steven Pittenger, Richard Crouse, Marina R. Picciotto  |
| Poster Presentation;<br>May 5 <sup>th</sup> , 2018      | <b>Undergraduate Research Conference</b>   NYU College of Arts & Sciences<br><i>“Behavioral preference for pup ultrasonic vocalizations in female mice”</i> <b>Katherine L. Furman</b> , Ioana Carcea, Robert C. Froemke  |
| Poster Presentation;<br>April 27 <sup>th</sup> , 2018   | <b>Undergraduate Research Festival</b>   NYU Center for Neural Science<br><i>“Sex-differences in the effect of estradiol on cocaine-induced dopamine release: Role of selective estrogen receptors”</i> <b>Katherine L. Furman</b> , Katie E. Yoest, Jennifer A. Cummings, Brandon J. Aragona, Jill B. Becker |

- Poster Presentation; April 25<sup>th</sup>, 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 11<sup>th</sup>, 2017      **Society for Neuroscience 47<sup>th</sup> 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 9<sup>th</sup>, 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

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- September 2019 – Present      **Girls Who Code** | Executive Committee Member, University of Michigan Chapter
- 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
  - 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
- October 2019-September 2020      **Neuroscience Graduate Student Organization – Outreach Chair** | University of Michigan
- Serve on the Executive Board of the Neuroscience Graduate Student Organization, which helps to plan events and activities for Neuroscience Graduate Students.
  - As Outreach Chair, I lead 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
- Helped recruit volunteers across various departments, organizations, and levels of expertise to volunteer at the 2020 UM BrainsRule! event
  - BrainsRule! is an annual outreach event where students, staff, and faculty at UM teach local middle schoolers about various aspects of neuroscience
  - *event cancelled due to COVID-19 pandemic*
- May 2017 – May 2019      **Society for Undergraduate Neural Science** | Vice President, NYU Chapter
- 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
  - Correspond with faculty advisors and guest-speakers
  - Outreach to the NYU and NYC Neuroscience community
- September 2017 – May 2019      **Neural Science Peer Mentor** | NYU Center for Neural Science
- Act as a peer mentor, sharing knowledge and experiences of my own to educate and advise six different freshman and sophomore mentees
- Spring 2018      **High School Neuroscience Mentor** | Lyons Community School, Brooklyn NY

- This program allows experienced scientists to help assist high school students from an underserved community in carrying out scientific research projects of their own in the classroom
- Oversaw five students' progress on designing, completing, and writing up their work in a scientific manner

Spring 2017 –  
Spring 2019

**Undergraduate Research Festival Planning Committee** | NYU Center for Neural Science

- Helped found the event, and served on the planning committee for the first, second and third annual Center for Neural Science Undergraduate Research Festival
- Coordinated and Planned the conference with a team of peers and faculty advisors
- Served as a liaison between presenters and administrators

## **Memberships & Affiliations**

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