

**JOSHUA P. NEUNUEBEL, Ph.D.**  
Blue highlights entries since appointment at UD

---

**CONTACT INFORMATION**

---

University of Delaware  
Psychological and Brain Sciences  
114 Wolf Hall  
Newark, DE 19716

Cell: (979) 739-5737  
Office: (302) 831-4811  
Lab: (302) 831-3387  
E-mail: [jneun@udel.edu](mailto:jneun@udel.edu)  
Website: <https://jneunuebel6.wixsite.com/psychlab>

---

**ACADEMIC POSITIONS**

---

Aug. 2014 – Present      Assistant Professor; **University of Delaware**  
Department of Psychological Brain Sciences

---

**EDUCATION**

---

Dec 2010      **Ph.D.** in Neuroscience, Department Neurobiology and Anatomy  
**University of Texas Health Science Center at Houston**, Houston, TX  
May 2004      **M.S.** in Biology, Department of Biology  
**Texas A&M University**, College Station, TX  
May 2001      **B.S.**, Cell and Molecular Biology  
**Texas A&M University**, College Station, TX

---

**RESEARCH EXPERIENCE**

---

Jan 2011 – July 2014      Postdoctoral Fellow; **HHMI Janelia Research Campus**  
Advisor: Dr. Roian Egnor, Ph.D.  
Dec 2010 – Jan 2011      Postdoctoral Fellow; **Johns Hopkins University**  
Advisor: James J. Knierim, Ph.D.  
April 2009 – Dec 2010      Visiting Doctoral Student; **Johns Hopkins University**  
Advisor: James J. Knierim, Ph.D.  
Sept 2004 – Dec 2010      Doctoral Student; **University of Texas Health Science Center at Houston**  
Advisor: James J. Knierim, Ph.D.  
Sept 2001 – March 2004      Masters Student; **Texas A&M University**  
Advisor: Mark J. Zoran, Ph.D.

---

**GRANT SUPPORT**

---

External Support

Sept 2019 – Present      NIH COBRE Grant - 1P20GM103653, University of Delaware, (\$115,000)  
Jan 2019 – Present      Good Nature Research Fund, (\$10,000)  
Sept 2018 – Aug 2019      NIH COBRE Grant - 1P20GM103653, University of Delaware, (\$75,000)  
March 2017 –      NIH COBRE Grant - 1P20GM103653, University of Delaware, (\$40,000)

Aug 2017

Nov 2005 – NIH Neuroscience Departmental Training Grant - T32 NS07467, University of  
Sept 2007 Texas Health Science Center at Houston

Internal Support

June 2015 – University of Delaware Research Foundation (\$35,000)  
May 2017

June 2015 – General University Research Grant (\$8,137)  
May 2016

---

## RESEARCH INTERESTS

---

- Neural information processing
- Social behavior
- Autism
- Communication
- Reproductive behavior
- Animal behavior
- Mouse ultrasonic vocalizations
- Dominance hierarchies
- Sex differences

---

## PUBLICATIONS

---

Peer reviewed

Warren MR, Meckler L, Spurrier MS, Roth ED & **Neunuebel JP**. Dissociating role-dependent patterns of affiliative vocal expression across the mouse reproductive cycle. [In Prep eLife](#).

Clein RS, Warren MR, Sangiamo DT, & **Neunuebel JP**. Aggressed male mice use female bystanders to escape hostile interactions. [In Prep Frontiers in Behavioral Neuroscience](#).

Warren MR & **Neunuebel JP**. Spectrum of ultrasonic vocal expressive deficits for individually diagnosed mice during dynamic group social interactions. [In Prep Nature](#).

Clein RS & Neunuebel JP. Theta rhyme and social behavior. [In Prep Behavioral Neuroscience](#).

Warren MR, Clein RS, Spurrier MS, Roth ED, & **Neunuebel JP**. [Ultrashort-range, high-frequency communication by female mice shapes social interactions](#). Scientific Reports. Accepted

Sangiamo DT, Warren MR, & **Neunuebel JP**. Ultrasonic signals associated with different types of social behavior of mice. [Nature Neuroscience](#). Accepted

GoodSmith D, Lee H, **Neunuebel JP**, Song H, & Knierim JJ. Dentate Gyrus Mossy Cells Share a Role in Pattern Separation with Dentate Granule Cells and Proximal CA3 Pyramidal Cells. J Neurosci. 2019 Nov 27;39(48):9570-9584. doi: 10.1523/JNEUROSCI.0940-19.2019. Epub 2019 Oct 22. PMID: 31641051

Warren MR, Spurrier MS, Roth ED, & **Neunuebel JP**. Sex Differences in vocal communication of freely interacting adult mice depend upon behavioral context. PLoS One, 2018; Sep 21;13(9):e0204527. doi: 10.1371/journal.pone.0204527. eCollection 2018.

Warren MR, Sangiamo DT, & **Neunuebel JP**. High Channel Count Microphone Array Accurately and Precisely Localizes Ultrasonic Signals from Freely-Moving Mice. *Journal Neuroscience Methods*, 2018; S0165-0270(17)30431-4.

Knierim JJ, **Neunuebel JP**. Tracking the flow of hippocampal computation: Pattern separation, pattern completion, and attractor dynamics. *Neurobiol Learn Mem*, 2016; 129: 38-49.

**Neunuebel JP**, Taylor AL, Arthur BJ, Egnor SR. Female mice ultrasonically interact with males during courtship displays. *Elife*, 2015; 4.

\*\* Featured in eLife Podcast (<http://elifesciences.org/podcast/episode21>)

\*\* Feature in Science News

(<http://news.sciencemag.org/news/2015/09/female-mice-croon-love-songs-too>)

\*\* Featured in Scientific American ([www.scientificamerican.com/podcast/episode/female-vocalists-are-in-the-mouse-house/](http://www.scientificamerican.com/podcast/episode/female-vocalists-are-in-the-mouse-house/))

\*\* Featured in NPR (<http://delawarepublic.org/post/ud-study-says-female-mice-sing-back-when-courted-males#stream/0>)

\*\* Featured in National Geographic (<https://www.nationalgeographic.com.au/animals/female-mice-sing-for-sex.aspx>)

Knierim JJ, **Neunuebel JP**, Deshmukh SS. Functional correlates of the lateral and medial entorhinal cortex: objects, path integration and local-global reference frames. *Philos Trans R Soc Lond B Biol Sci*, 2014; 369: 20130369.

**Neunuebel JP**, Knierim JJ. CA3 retrieves coherent representations from degraded input: direct evidence for CA3 pattern completion and dentate gyrus pattern separation. *Neuron*, 2014; 81: 416-27.

\*\* Previewed in *Neuron*, 2014, doi: 10.1016/j.neuron.2014.01.004

\*\* Recommended by Faculty of 1000 as special significance, September 8, 2014

**Neunuebel JP**, Yoganarasimha D, Rao G, Knierim JJ. Conflicts between local and global spatial frameworks dissociate neural representations of the lateral and medial entorhinal cortex. *J Neurosci*, 2013; 33: 9246-58.

\*\* Featured Article

\*\* Highlighted in *Current Biology*, 2013, doi: 10.1016/j.cub.2013.07.018

**Neunuebel JP**, Knierim JJ. Spatial firing correlates of physiologically distinct cell types of the rat dentate gyrus. *J Neurosci*, 2012; 32: 3848-58.

\*\* Featured Article

Siegel JJ, **Neunuebel JP**, Knierim JJ. Dominance of the proximal coordinate frame in determining the locations of hippocampal place cell activity during navigation. *J Neurophysiol*, 2008; 99: 60-76.

**Neunuebel JP**, Zoran MJ. Electrical synapse formation disrupts calcium-dependent exocytosis, but not vesicle mobilization. *Synapse*, 2005; 56: 154-65.

---

## CONFERENCE PRESENTATIONS AND ABSTRACTS

---

R.S. Clein, D.T. Sangiamo, M.R. Warren, and **J.P. Neunuebel**. Quantifying dynamic social and vocal behavior of freely interacting mice using a sound source localization system. [Delaware Neuroscience Symposium](#), 2019.

M.R. Warren, R.S. Clein, and **J.P. Neunuebel**. Using a sound source localization system to determine the function of mouse vocal signals during naturalistic group interaction. [Delaware Neuroscience Symposium](#), 2019.

L. Armus, M. R. Warren, and **J.P. Neunuebel**. Quantifying Dynamic, Complex Vocal Sequences Emitted by Freely Interacting Mice. [Delaware Neuroscience Symposium](#), 2019.

R.S. Clein, D.T. Sangiamo, M.R. Warren, and **J.P. Neunuebel**. Quantifying dynamic social and vocal behavior of freely interacting mice using a sound source localization system. Program No. 498.06. 2019 Neuroscience Meeting Planner. Chicago, IL: Society for Neuroscience, 2019. Online.

M.R. Warren, R.S. Clein, and **J.P. Neunuebel**. Using a sound source localization system to determine the function of mouse vocal signals during naturalistic group interaction. Program No. 498.05. 2019 Neuroscience Meeting Planner. Chicago, IL: Society for Neuroscience, 2019. Online.

M. Smolens, M.R. Warren, R.S. Clein, and **J.P. Neunuebel**. Examining the Relationship between Mouse Vocalization and Spatial Location. 2019, Summer Scholars Poster Session.

D.T. Sangiamo, M.R. Warren, and **J.P. Neunuebel**. Ultrasonic vocabulary defined by social behavior of mice. West Dover, VT: Gordon Research Conference on Neuroethology Behavior, Evolution and Neurobiology. 2019

M.R. Warren and **J.P. Neunuebel**. Using a sound source localization system to quantify autism-like deficits in mice during naturalistic group interaction. 2018 Delaware Neuroscience Symposium.

[M.R. Warren won best graduate poster.](#)

L.A. Meckler, M.R. Warren, M.S. Spurrier, E.D. Roth, and **J. P. Neunuebel**. Using sound source localization to investigate the impact of the reproductive cycle on mouse communication. 2018 Delaware Neuroscience Symposium.

[L. A. Meckler 2nd place for best undergraduate poster.](#)

M.R. Warren and **J.P. Neunuebel**. Using a sound source localization system to quantify autism-like deficits in mice during naturalistic group interaction. Program No. 407.15. 2018 Neuroscience Meeting Planner. San Diego, CA: Society for Neuroscience, 2018. Online.

R.S. Clein, D.T. Sangiamo, and **J.P. Neunuebel**. Investigating the role that social status plays in vocal courtship behavior using a sound source localization system. Program No. 407.14. 2018 Neuroscience Meeting Planner. San Diego, CA: Society for Neuroscience, 2018. Online.

D. Goodsmith, H. Lee, **J.P. Neunuebel**, and J.J. Knierim. Responses of granule cells, mossy cells, and proximal CA3 cells to local/global cue mismatch indicate a shared role in pattern separation. Program No. 330.07. 2018 Neuroscience Meeting Planner. San Diego, CA: Society for Neuroscience, 2018. Online.

M.R. Warren and **J.P. Neunuebel**. Using a sound source localization system to quantify autism-like deficits in mice during naturalistic group interaction. Champalimaud Research Symposium - Quantitative Approaches to Behaviour and Neural Systems. Lisbon, Portugal.

R.S. Clein, D.T. Sangiamo, and **J.P. Neunuebel**. Quantifying the dynamic nature of social status in mice. Champalimaud Research Symposium - Quantitative Approaches to Behaviour and Neural Systems. Lisbon, Portugal.

L.A. Meckler, M.R. Warren, M.S. Spurrier, E.D. Roth, and **J. P. Neunuebel**. Using sound source localization to investigate the impact of the reproductive cycle on mouse social communication. 2018, Summer Scholars Poster Session.

T. Wilkerson, M.R. Warren, and **J.P. Neunuebel**. Investigating the Role Pheromones Play in Social Communication. 2018, Summer Scholars Poster Session.

M.R. Warren and **J.P. Neunuebel**. Sound source localization system reveals ultrasonic communication in groups of freely interacting mice. 2017 Delaware Neuroscience Symposium.

M.R. Warren won best graduate poster.

L.A. Meckler, M.R. Warren, M.S. Spurrier, E.D. Roth, and **J. P. Neunuebel**. Using sound source localization to investigate the impact of the reproductive cycle on mouse vocal expression. 2017 Delaware Neuroscience Symposium.

L. A. Meckler 3rd place for best undergraduate poster.

M.R. Warren and **J.P. Neunuebel**. Quantification of social communication in a mouse model of autism using a sound source localization system. Program No. 157.07. 2017 Neuroscience Meeting Planner. San Diego, CA: Society for Neuroscience, 2017. Online.

D.T. Sangiamo, M.R. Warren, and **J.P. Neunuebel**. Sound source localization system reveals ultrasonic semantic communication in groups of freely interacting mice. Program No. 157.05. 2017 Neuroscience Meeting Planner. San Diego, CA: Society for Neuroscience, 2017. Online.

L.A. Meckler, M.R. Warren, M.S. Spurrier, E.D. Roth, and **J.P. Neunuebel**. Using sound source localization to investigate the impact of the reproductive cycle on mouse vocal expression. Program No. 157.06. 2017 Neuroscience Meeting Planner. San Diego, CA: Society for Neuroscience, 2017. Online.

D.T. Sangiamo, M.R. Warren, X. Zhong, and **J.P. Neunuebel**. Male mice emit ultrasonic vocalizations during agonistic interactions. 2016 Delaware Neuroscience Symposium.

D.T. Sangiamo won best undergraduate poster.

M.S. Spurrier, E.R. Roth, M.R. Warren, and **J.P. Neunuebel**. Sex differences in the acoustic structure of mouse ultrasonic vocalizations. 2016 Delaware Neuroscience Symposium.

M.S. Spurrier won 2<sup>nd</sup> place for best undergraduate poster.

M.R. Warren and **J.P. Neunuebel**. Direct quantification of a social communication deficit in a mouse model of autism. 2016 Delaware Neuroscience Symposium.

D.T. Sangiamo, M.R. Warren, X. Zhong, and **J.P. Neunuebel**. Male mice emit ultrasonic vocalizations during agonistic interactions. Program No. 444.02. 2016 Neuroscience Meeting Planner. San Diego, CA: Society for Neuroscience, 2016. Online.

M.S. Spurrier, E.R. Roth, M.R. Warren, and **J.P. Neunuebel**. Sex differences in the acoustic structure of mouse ultrasonic vocalizations. Program No. 444.03. 2016 Neuroscience Meeting Planner. San Diego, CA: Society for Neuroscience, 2016. Online.

M.R. Warren and **J.P. Neunuebel**. Direct quantification of a social communication deficit in a mouse model of autism. Program No. 444.04. 2016 Neuroscience Meeting Planner. San Diego, CA: Society for Neuroscience, 2016. Online.

M. Spurrier and **J.P. Neunuebel**. Sex differences in the acoustic structure of mouse ultrasonic vocalizations. 2016, Summer Scholars Poster Session.

D. Sangiamo and **J.P. Neunuebel**. The Relationship Between Ultrasonic Vocalizations and Agonistic Behaviour. 2015, Summer Scholars Poster Session.

X. Zhong and **J.P. Neunuebel**. Examining the Role of Mouse Ultrasonic Vocalizations During Exploration in a Novel Environment. 2015, Summer Scholars Poster Session.

**J.P. Neunuebel**, and S.E.R. Egnor. Localization of ultrasonic vocalizations emitted by both male and female mouse models of Fragile X while socially interacting. Program No. 584.01. 2013 Neuroscience Meeting Planner. San Diego, CA: Society for Neuroscience, 2013. Online.

K. Seagraves, **J.P. Neunuebel**, and S.E.R. Egnor. Female rejection and male vocal behavior may play an intimate role in the mating behavior of the house mouse. Program No. 584.02. 2013 Neuroscience Meeting Planner. San Diego, CA: Society for Neuroscience, 2013. Online.

**J.P. Neunuebel**, A.L. Taylor, and S.E.R. Egnor. Ultrasonic vocal interaction between male and female mice during courtship. Society for Neuroscience Satellite Meeting, Mechanisms of Communication: Critical Periods and Social Learning, 2013.

**J.P. Neunuebel**, A.L. Taylor, and R.S.E. Egnor. Identifying the source of mouse ultrasonic vocalizations during social interaction using a four-channel microphone array. Program No. 296.05. 2012 Neuroscience Meeting Planner. New Orleans, LA: Society for Neuroscience, 2012. Online.

**J.P. Neunuebel**, A.L. Taylor, and R.S.E. Egnor (2012). Localizing the source of mouse ultrasonic vocalizations using a four-channel microphone array. *Front. Behav. Neurosci. Conference Abstract: Tenth International Congress of Neuroethology*. doi: 10.3389/conf.fnbeh.2012.27.00326.

**J.P. Neunuebel** and J.J. Knierim. Cells of the dentate gyrus polymorphic layer have spatial firing with multiple, irregularly distributed fields. Program No. 405.16. *2010 Abstract Viewer/Itinerary Planner*. San Diego, CA: Society for Neuroscience, 2010. Online.

**J.P. Neunuebel**, G. Rao, D. Yoganarasimha, and J.J. Knierim. Differential control of lateral and medial entorhinal cortex by local and global cues. Program No. 100.4. *2009 Abstract Viewer/Itinerary Planner*. Chicago, Ill: Society for Neuroscience, 2009.

**J.P. Neunuebel** and J.J. Knierim. CA3 place fields respond more coherently than dentate gyrus fields in a local-global cue-mismatch manipulation. Program No. 90.4. *2008 Abstract Viewer/Itinerary Planner*. Washington, DC: Society for Neuroscience, 2008. Online.

J.J. Siegel, **J.P. Neunuebel**, G. Rao, J.J. Knierim. Increased partial remapping rates are associated with proportional decreases in the fidelity of place activity by cells that maintain similar firing fields within hippocampal ensembles. Program No. 205.18. *2007 Abstract Viewer/Itinerary Planner*. San Diego, CA: Society for Neuroscience, 2007. Online.

**J.P. Neunuebel**, J.J. Siegel, G. Rao, J.J. Knierim. The effects of goal-directed behavior on hippocampal representations of space. Program No. 574.6. *2006 Abstract Viewer/Itinerary Planner*. Washington, DC: Society for Neuroscience, 2006. Online.

J.J. Siegel, **J.P. Neunuebel**, G. Rao, J.J. Knierim. Differences in population coherence of CA3 and CA1 place cell ensembles in a spatial navigation task: pattern completion vs. pattern separation. Program No. 574.7. *2006 Abstract Viewer/Itinerary Planner*. Washington, DC: Society for Neuroscience, 2006. Online.

K.K. Ricks, **J.P. Neunuebel**, M.J. Zoran. Electrical synapse formation disrupts calcium-dependent exocytosis but not vesicle mobilization. Program No. 834.11. *2005 Abstract Viewer/Itinerary Planner*. Washington, DC: Society for Neuroscience, 2005. Online.

**J.P. Neunuebel** and M.J. Zoran. Mechanism underlying the suppression of chemical neurotransmission in regenerating *Helisoma* neurons. Program No. 898.13. *2003 Abstract Viewer/Itinerary Planner*. Washington, DC: Society for Neuroscience. Online.

**J.P. Neunuebel** and M.J. Zoran. Calcium dynamics at regenerating synapses in cell culture. Program No. 730.11. *2002 Abstract Viewer/Itinerary Planner*. Washington, DC: Society for Neuroscience, 2002. Online.

---

## STUDENT MENTORING

---

*Current Lab Members (graduate)*

Summer 2017– Present	Lauren Armus, Graduate, Biological Sciences, Institution: University of Delaware
Summer 2017– Present	Rachel Clein, Graduate, Behavioral Neuroscience, Institution: University of Delaware
Summer 2016– Present	Megan Warren, Graduate, Behavioral Neuroscience, Institution: University of Delaware

*Current Lab Members (undergraduate)*

Winter– Present	Marina Smolens, Undergraduate, Electrical Engineering, Institution: University of Delaware
Winter– Present	Elena Riccardi, Undergraduate, Psychology, Institution: University of Delaware

*Past Lab Members (graduate)*

Fall 2019– Fall 2019	Drake Bahajak, Graduate, Biological Sciences, Institution: University of Delaware
-------------------------	---

*Past Lab Members (undergraduate)*

Fall 2017– Spring 2020	Ana Tegtmeier, Undergraduate, Neuroscience, Institution: University of Delaware
Fall 2017– Spring 2020	Andrew Rahe, Undergraduate, Neuroscience, Institution: University of Delaware
Fall 2016– Spring 2020	Lauren Meckler, Undergraduate, Neuroscience, Institution: University of Delaware
Winter 2018– Winter 2019	Tanner Wilkerson, Undergraduate, Neuroscience, Institution: University of Delaware
Winter 2018– Spring 2018	Mary Butler, Undergraduate, Neuroscience, Institution: University of Delaware
Summer 2017– Spring 2018	Bryan Wright, Undergraduate, Neuroscience, Institution: University of Delaware
Summer 2017– Spring 2018	Paige Burcham, Undergraduate, Neuroscience, Institution: University of Delaware
Fall 2017– Spring 2018	Jacob Jones, Undergraduate, Neuroscience, Institution: University of Delaware
Fall 2016– Spring 2017	Nicole Kozak, Undergraduate, Neuroscience, Institution: University of Delaware
Fall 2016– Spring 2017	Grace Crawford, Undergraduate, Neuroscience, Institution: University of Delaware
Summer 2016– Summer 2016	Hannah Poore, Undergraduate, Neuroscience, Institution: University of Delaware
Fall 2015– Fall 2016	Julie King, Undergraduate, Neuroscience, Institution: University of Delaware

Fall 2015– Fall 2015	Christine Hill, Undergraduate, Neuroscience, Institution: University of Delaware
Spring 2015– Fall 2016	Daniel Sangiamo, Undergraduate, Neuroscience, Institution: University of Delaware
Spring 2015– Winter 2016	Becky Gessler, Undergraduate, Neuroscience, Institution: University of Delaware
Spring 2015– Fall 2015	Xiixin Zhong, Undergraduate, Neuroscience, Institution: University of Delaware
Spring 2015– Spring 2017	Morgan Spurrier, Undergraduate, Neuroscience, Institution: University of Delaware

#### *Dissertation Committees*

Summer 2018– Present	Alexandra Turano, Doctoral, Behavioral Neuroscience, Institution: University of Delaware, Role: Dissertation Committee Member
Summer 2018– Present	Andrew Garcia, Doctoral, Behavioral Neuroscience, Institution: University of Delaware, Role: Dissertation Committee Member

#### *Thesis Committees*

Fall 2018– Present	David Maisson, Doctoral, Behavioral Neuroscience, Institution: University of Delaware, Role: Chair
Fall 2017– Present	John Stout, Doctoral, Behavioral Neuroscience, Institution: University of Delaware, Role: Master's Thesis Committee Member
Spring 2017– Fall 2017	Alicia Edsall, Doctoral, Behavioral Neuroscience, Institution: University of Delaware, Role: Master's Thesis Committee Member
Fall 2016– Spring 2017	Hollie Sanders, Doctoral, Behavioral Neuroscience, Institution: University of Delaware, Role: Master's Thesis Committee Member

---

## **PROFESSIONAL EXPERIENCE**

---

#### *AdHoc Reviewer*

Neurotoxicology, Journal of Neuroscience, Journal of Neurophysiology, PLOS ONE, Hippocampus, Cerebral Cortex, Frontiers in Behavioral Neuroscience, Learning and Memory, eLife, Comparative Medicine, JoVE, Behavioral Neuroscience, Physiology of Behavior

#### *University Service*

Nu Rho Psi, Library Liaison, Animal Facility Scientific Advisory Committee, Behavioral Neuroscience Brown Bag Organizer, Behavioral Neuroscience Bolus Beverage and Data Blitz Organizer, Guest Lecturer NSCI645, Delaware INBRE Summer Scholars Mentor

#### *Service Outside of University*

Dec 2019 Oct 2018	Poster Judge; Delaware Neuroscience Research and Poster Symposium University of Delaware's representative at the Annual Sigma Xi Conference
Dec 2018 Dec 2017 Oct 2017	Poster Judge; Delaware Neuroscience Research & Poster Symposium Poster Judge; Delaware Neuroscience Research & Poster Symposium Organized Symposium at Pavlovian Society



Dec 2016 Poster Judge; Delaware Neuroscience Research & Poster Symposium  
Dec 2014 Poster Judge; Delaware Neuroscience Research & Poster Symposium

### *Memberships*

2018 – Present Sigma Xi  
2017 – Present Pavlovian Society  
2015 – 2016 Association for Psychological Science  
2012 – Present International Congress of Neuroethology  
2002 – Present Society for Neuroscience

### *Development*

March 2017 Best Practices in Mentoring Course  
March 2016 Cold Spring Harbor Workshop on Leadership in Bioscience  
Nov 2008 SFN Short Course: Optical Control of Neural Excitability  
Summer 2005 Cold Spring Harbor Laboratory Biology of Memory Course

---

## HONORS AND AWARDS

---

Sept 2009 1<sup>st</sup> place for Graduate Student Systems Research, Johns Hopkins Neuroscience  
Feb 2004 2<sup>nd</sup> place for Graduate Student Research, Texas A&M Neuroscience  
Sept 2001 Texas A&M College of Science Biology Fellowship

---

## TEACHING EXPERIENCE

---

2017-2019 NSCI467; Neural Basis of Communication  
2017 NSCI320; Introduction to Neuroscience  
2015, 2016, 2019-2020 NSCI368; Advance Research in Neuroscience  
2015, 2017-2020 PSYC314; Brain and Behavior  
2014 PSYC314; Brain and Behavior Honors

---

## INVITED TALKS

---

### External

Oct 2018 Big Data and the Future of Research, Biology and Medicine, **Sigma Xi Annual Meeting**, San Francisco, CA  
June 2018 Keynote Speaker for Annual Delaware State University Summer Research Symposium, **Delaware State University**, Dover, DE  
March 2018 Nurture Science Program Lecture Series, **Columbia University**, New York, NY  
Jan 2018 EEB Seminar Series, **Dept. of Biology-Indiana University**, Bloomington, IN  
Oct 2017 Social Communication, **Pavlovian Society**, Philadelphia, PA  
April 2017 Stress Neurobiology Seminar Series, **Children's Hospital of Philadelphia**, Philadelphia, PA  
Feb 2017 Introductory Research Seminar, **COBRE Monthly Meeting**, Odessa, DE  
May 2016 Measuring vocal communication in rodents, **Measuring Behavior**, Dublin, Ireland  
March 2015 Stress Neurobiology Seminar Series, **Children's Hospital of Philadelphia**, Philadelphia, PA

March 2014 Behavioral Neuroscience Colloquium, **University of Delaware**, Newark, DE  
March 2014 Department of Psychology Seminar, **University of Oregon**, Eugene, OR  
Feb 2014 Department of Neuroscience Seminar, **University of Arizona**, Tucson, AZ  
April 2012 Bioacoustics and Vocal Communication in Mice, **Pasteur Institute**, Paris, France  
Jan 2011 Bodian Seminar, **Johns Hopkins University**, Baltimore, MD  
March 2010 Egnor Lab Postdoctoral Talk, **HHMI Janelia Research Campus**, Ashburn, VA  
March 2010 Isaac Lab Postdoctoral Talk, **National Institutes of Health**, Bethesda, MD

Internal

Dec 2018 COBRE Annual Winter EAC meeting, **University of Delaware**, Newark, DE  
June 2016 HPC Symposium, **University of Delaware**, Newark, DE  
April 2015 Life Science Research Facility Group, **University of Delaware**, Newark, DE  
April 2015 Social Psychology Brown Bag, **University of Delaware**, Newark, DE

---

**PRESS COVERAGE**

---

Nov 2018 "Pattern of squeaks corresponds to social behavior in autism mice", Spectrum  
Nov 2015 "Female Vocalists Are in the (Mouse) House", Scientific American  
Sept 2015 "Mice Sing Love Songs for Sex", National Geographic Channel  
Sept 2015 "UD study says female mice sing back when courted by males", Delaware Public Media  
Sept 2015 "Female mice croon love songs, too", Science  
Sept 2015 "Songs in the key of mouse", UDaily  
June 2015 "Check mate", The Naked Scientists  
Nov 2012 "Catalog of mice cries aids quest to find their meaning", SFARI  
Nov 2013 "For mice, mating is a dialogue between sexes", SFARI