# May 2021

### Elizabeth P. Bauer

Associate Professor, Biology Department, Neuroscience Department

Work Address: 1113 Altschul 3009 Broadway New York, NY 10027 (212) 854-2349 ebauer@barnard.edu Home Address: 420 Central Park West, 3B New York, NY 10025 (212) 628-2958

## **Degrees in Higher Education**

Ph.D., Center for Neural Science, New York University, Dr. Joseph LeDoux (2004)
Doctoral Dissertation: Cellular Mechanisms of Fear Learning in the Lateral Amygdala
A.B., Magna Cum Laude with High Distinction, Neuroscience, Amherst College (1997)

# **Additional Professional Training**

Postdoctoral Fellow, Center for Molecular and Behavioral Neuroscience, Rutgers University, Mentor: Dr. Denis Paré, April 2005-May 2008

Postdoctoral Fellow, Psychology Department, Yale Univ., Mentor: Dr. Glenn Schafe, September 2004-March 2005.

Predoctoral research, Center for Neural Science, New York University, Mentor: Dr. Joseph LeDoux 1999-2004

Predoctoral research, Center for Neural Science, NYU, Dr. Nava Rubin, 1998

## **Professional Experience in Higher Education**

Associate Professor, Biology Department, Barnard College: July 2018-present
Assistant Professor, Department of Biological Sciences, Barnard College: July 2008-July 2018
Adjunct Assistant Professor, Department of Biological Sciences, Barnard College. September 2007-June 2008.

#### **Academic and Professional Honors**

Tow Associate Professorship for Distinguished Scholars (awarded May, 2021) Honorable Mention, Emily Gregory Award, Barnard College (2015, 2018) Dean's Dissertation Fellowship (2002-2003, GSAS, New York University) James Olds Memorial Neuroscience Award (1997, Amherst College).

## **Current Membership in Professional Societies**

American Psychological Association Molecular and Cellular Cognition Society Pavlovian Society Society for Neuroscience

### **Courses Taught**

Cellular and Molecular Neuroscience (BC BIOL 3362) Laboratory in Cellular and Molecular Neuroscience (BC BIOL 3363)

Contemporary Issues in Biology (BC BIOL 1002)

Guided Research and Seminar (BC BIOL 3592; BC BIOL 3595)

Senior Research Seminar (BC NSBV 3593; 3594)

Research Methods Seminar (BC BIOL 2900; CHEM 2900)

Research Apprenticeship Seminar (BC HSPP1001; 1002)

Senior Theses (Barnard)

- Debora Goldschmidt (Biology Department; 2008) The role of the bed nucleus of the stria terminalis in fear conditioning and anxiety.
- Sarah DeWitt (Neuroscience and Behavior; 2009) The role of the bed nucleus of the stria terminalis and corticotropin-releasing factor in fear conditioning and anxiety.
- Angela Lu (Biology Department; 2009) The critical effects of the bed nucleus of the stria terminalis on neural systems involving fear and anxiety.
- Amanda Miller (Neuroscience and Behavior, 2010) Effects of corticotropin-releasing factor on fear memory.
- Elzbieta Jacek (Neuroscience and Behavior, 2010) Brain modulation of anxiety during stressful events.
- Stephanie Davis (Neuroscience and Behavior, 2011) The effects of blocking L-type voltage-gated calcium channels on fear extinction.
- Tina Shah (Neuroscience and Behavior, 2011) Corticotropin-releasing factor in the basolateral amygdala enhances fear extinction.
- Solange Wong (Neuroscience and Behavior, 2011) Stress and fear learning in juvenile rats.
- Dina Abiri (Neuroscience and Behavior, 2012) Corticotropin releasing factor infused into the basolateral amygdala in rats impairs fear extinction.
- Daly Franco (Neuroscience and Behavior 2012) Stress- and age-related differential activation of the amygdala during auditory fear conditioning in male rats.
- Christina Douglas (Neuroscience and Behavior 2013) The effect of corticotropin-releasing factor in the basolateral amygdala on fear conditioning
- Katina Calakos (Neuroscience and Behavior 2014) CRF-1 receptor localization in the basolateral nucleus of the amygdala.
- Sara Pasik (Neuroscience and Behavior 2014) Active cells in the BNST involved in the acute anxiety initiated by SSRIs contain 5-HT2C receptors.
- Eliza Pelrine (Neuroscience and Behavior 2014) Serotonin receptors of the BNST mediate antidepressant-induced anxiety.
- Leyla Bayat (Neuroscience and Behavior, 2015) Activation of extended amygdala circuits by selective serotonin reuptake inhibitors.
- Georgia Barbayannis (Neuroscience and Behavior, 2015) The effects of age and stress on the amygdala of male rats.
- Lindsey Bell (Psychology, 2016) Characterization of the bed nucleus of the stria terminalis pathways: Implications for fear learning.
- Alexandra Schulz (Neuroscience and Behavior, 2016) Effects of acute Selective Serotonin Reuptake Inhibitor administration on fear memory reconsolidation
- Ilana Lehman (Neurotheology, 2017) Kissed by the Gods: Spiritual experiences from temporal lobe epilepsy and how we can understand them
- Katalina Acevedo (Psychology, 2017): Characterization of extended amygdala circuitry in male and female rats
- Nicole Stein (Biology, 2017): Amygdala circuitry involved in the expression of contextual fear

- conditioning
- Ellis Breunig (Neuroscience and Behavior, 2018): Acute SSRI administration has no effect on fear memory reconsolidation but enhances consolidation in female rats.
- Stacey Cohen (Neuroscience and Behavior, 2019): Characterization of contextual inputs in fear learning.
- Sarah Jinich (Neuroscience and Behavior, 2019): The role of the BNST to central amygdala neuronal projection.
- Rachel Nordlicht (Neuroscience and Behavior, 2020): Characterization of contextual inputs for fear learning in female rats.
- Elizabeth Bier (Neuroscience and Behavior, 2021): Characterization of the ventral subiculum-BNST pathway.
- Sophia Howard (Biology, 2021): Fear expression modulates activity in the ventral subiculum-BNST pathway in male and female rats.

## **Publications**

For primary research articles, the senior author is always listed last. For book chapters and review articles, the corresponding author is starred (\*).

# Book chapters

Bauer, E.P.\*, Pare, D. (2016) "Behavioral neuroscience of circuits involved in fear processing" In: Neurobiology of PTSD. I. Liberzon and K. Ressler, ed. Oxford: Oxford University Press. pp 5-26.

Peer-reviewed journal articles (Barnard undergraduates are in **bold**)

- Urien, L, Bauer E.P. Sex differences in BNST and amygdala activation by contextual, cued and unpredictable threats. *Submitted*.
- Urien, L, **Stein, N, Ryckman, A, Bell, L,** Bauer, E.P. (2021) Extended amygdala circuits are differentially activated by context fear conditioning in male and female rats. *Neurobiol Learn Mem*, 180:107401.
- Urien, L., Xiao, Z., Dale, J., Bauer, E.P., Chen, Z., Wang, J (2018) Rate and temporal coding mechanisms in the anterior cingulate cortex for pain anticipation. *Scientific Reports*. 8(1):8298.
- **Barbayannis, G., Franco, D., Wong, S., Galdamez, J.,** Romeo, R.D., Bauer, E.P. (2017) The effects of stress on fear learning and activation of the amygdala in pre-adolescent and adult male rats. *Neuroscience*. 360:210-219.
- Calakos K.C., Blackman D., Schulz A.M., Bauer E.P. (2017) Distribution of corticotropin-releasing factor (CRF) receptors on GABAergic neurons within the basolateral amygdala. *Synapse*, 71(4). doi: 10.1002/syn.21953.
- **Pelrine E., Pasik S.D., Bayat L.,** Bauer E.P. (2016) 5-HT2C receptors in the BNST are necessary for the enhancement of fear learning by selective serotonin reuptake inhibitors. *Neurobiology of Learning and Memory*, 136:189-195.
- Bauer, E.P. (2015) Serotonin in fear conditioning processes. *Behavioral Brain Research*, 277:68-77.
- **Abiri D., Douglas C.E., Calakos K.C., Barbayannis G.**, Roberts, A., Bauer, E.P. (2014) Fear extinction learning can be impaired or enhanced by modulation of the CRF system in the

- basolateral nucleus of the amygdala. Behavioral Brain Research, 271:234-9.
- Burghardt, N.S., Bauer, E.P.\* (2013) Acute and chronic effects of SSRI treatment on fear conditioning: implications for underlying fear circuits. *Neuroscience*, 247:253-72.
- Ravinder, S., Burghardt, N.S., **Brodsky, R.**, Bauer, E.P., Chattarji, S. (2013) A role for the extended amygdala in the fear-enhancing effects of acute selective serotonin reuptake inhibitor treatment. *Translational Psychiatry* Jan 15;3e209.
- **Davis, S.E.**, Bauer E.P. (2012) L-type voltage-gated calcium channels in the basolateral amygdala are necessary for fear extinction. *Journal of Neuroscience*, 32(39):13582-6.
- Duvarci, S., Bauer E.P., Paré, D. (2009) The bed nucleus of the stria terminalis mediates interindividual variations in anxiety and fear. *Journal of Neuroscience*, 29(33):10357-61. (S.D. and E.P.B. contributed equally to this work).
- Paz, R., Bauer, E.P., Paré, D. (2009) Measuring correlations and interactions between four simultaneously recorded brain regions during learning. *Journal of Neurophysiology*, 101(5):2507-15.
- Paz, R., Bauer, E.P., Paré, D. (2008) Theta synchronizes the activity of medial prefrontal neurons during learning. *Learning and Memory*, 15(7):524-31.
- Bauer, E.P., Paz, R. Paré, D. (2007) Gamma oscillations coordinate amygdalo-rhinal interactions during learning. *Journal of Neuroscience*, 27(35):9369-79.
- Paz, R., Bauer, E.P., Paré, D. (2007) Learning-related facilitation of rhinal interactions by medial prefrontal inputs. *Journal of Neuroscience* 27(24):6542-51.
- Paz, R., Pelletier, J.G., Bauer, E.P., Paré, D. (2006) Emotional enhancement of memory via amygdala-driven facilitation of rhinal interactions. *Nature Neuroscience*, 9(10) 1321-29.
- Schafe, G.E., Bauer, E.P., Rosis, L.R., Farb, C., Rodrigues, S.M., LeDoux, J.E. (2005) Memory consolidation of Pavlovian fear conditioning requires nitric oxide signaling in the lateral amygdala. *European Journal of Neuroscience*, 22: 201-211.
- Bauer, E.P., LeDoux, J.E. (2004) Heterosynaptic potentiation of inhibitory interneurons in the lateral amygdala. *Journal of Neuroscience*, 24(43) 9507-9512.
- Rodrigues, S.M., Farb, C.R., Bauer, E.P., LeDoux, J.E., Schafe, G.E. (2004) Pavlovian fear conditioning regulates Thr<sup>286</sup> autophosphorylation of Ca<sup>2+</sup>/calmodulin-dependent protein kinase II at lateral amygdala synapses. *Journal of Neuroscience* 24(13) 3281-3288.
- Bauer, E.P., Schafe, G.E., LeDoux, J.E. (2002) Both NMDA receptors and L-type voltage-gated calcium channels contribute to long-term potentiation and different components of fear memory formation in the lateral amygdala. *Journal of Neuroscience*, 22(12) 5239-5249.
- Rodrigues, S.M., Bauer, E.P., Farb, C.R., Schafe, G.E., LeDoux, J.E. (2002) The Group I metabotropic glutamate receptor mGluR5 is required for fear memory formation and long-term potentiation in the lateral amygdala. *Journal of Neuroscience*, 22(12) 5219-5229.
- Blair, H.T.,\* Schafe, G.E., Bauer, E.P., Rodrigues, S.M., LeDoux, J.E. (2001) Synaptic plasticity in the lateral amygdala: A cellular hypothesis of fear conditioning. *Learning and Memory*, 8(5):229-242.
- Bauer, E.P., LeDoux, J.E., Nader, K. (2001) Fear conditioning and LTP in the lateral amygdala are sensitive to the same stimulus contingencies. *Nature Neuroscience*, July 4(7): 687-8.
- Schafe, G.E., Atkins, C.M., Swank, M.W., Bauer, E.P., Sweatt, J.D., LeDoux, J.E. (2000) Activation of ERK/MAP kinase in the amygdala is required for memory consolidation of Pavlovian fear conditioning. *Journal of Neuroscience*, 20(21):8177-8187.
- Weisskopf, M.G., Bauer, E.P., and LeDoux, J.E. (1999) L-type voltage-gated calcium channels mediate NMDA-independent associative long-term potentiation at thalamic input

- Abstracts presented at conferences (Barnard undergraduates are in **bold**)
- Urien, L., **Cohen, S., Nordlicht, R.,** Bauer, E.P. (2019) Anatomical and functional characterization of ventral subiculum inputs to the BNST. *Society for Neuroscience Abstracts*
- Urien, L., **Nordlicht, R.,** Bauer, E.P. (2019) Extended amygdala circuits are differentially activated by context fear conditioning in male and female rats. *Society for Neuroscience Abstracts*
- Urien, L., Cohen, S., Nordlicht, R., Bauer, E.P. (2019) Contextual fear conditioning differentially activates extended amygdala circuits in male and female rats. *NeuroFrance*
- Urien, L., Cohen, S., Jinich, S., Nordlicht, R., Bauer, E.P. (2018) Sexually dimorphic brain pathways for contextual fear conditioning. *Pavlovian Society Conference*
- **Acevedo, K., Stein, N., Breunig, E., Ryckman, A.,** Bauer, E.P. (2016) Extended amygdala circuits recruited by the expression of contextual fear conditioning. *Pavlovian Society Conference*
- **Barbayannis, G., Franco, D., Wong, S., Galdamez, J.,** Bauer, E.P., Romeo, R.D. (2016) The 'effects of stress on fear learning and activation of the amygdala in pre-adolescent and adult male rats. *Society for Behavioral Neuroendocrinology*.
- Calakos, K., Bauer, E.P. (2014) CRF receptor localization in the basolateral nucleus of the amygdala. *Society for Neuroscience Abstracts*.
- **Pelrine, E., Pasik, S.D.,** Bauer, E.P. (2014) 5HT2C receptors in the bed nucleus of the stria terminalis (BNST) are implicated in the enhanced fear learning induced by SSRIs. *Society for Neuroscience Abstracts*.
- Roquet R.F., Bauer E.P., Monfils M. (2014) Fear conditioning at p17/p25: The effects of fluoxetine on retention and re-conditioning in adulthood. *Society for Neuroscience Abstracts*.
- Roquet R.F., Bauer E.P., Monfils M.H. (2013) Fear conditioning in early life: the effects of fluoxetine on retention and re-conditioning in adulthood. *Society for Neuroscience Abstracts*.
- **Abiri, D., Shukla, A., Calakos K.,** Bauer, E.P. (2012) Corticotropin-releasing factor in the basolateral amygdala impairs fear extinction. *Pavlovian Society Conference*.
- **Davis, S.**, Bauer E.P. (2011) L-type voltage gated calcium channels in the basolateral amygdala are necessary for fear extinction. *Society for Neuroscience Abstracts*.
- Ravinder S., Bauer, E.P., Burghardt, N.S., **Brodsky, R.,** Chattarji, S. (2011) A role for the central nucleus of the amygdala in mediating the anxiogenic effects of acute SSRI administration. *Society for Neuroscience Abstracts*.
- Duvarci, S., Bauer E.P., Paré, D. (2008) Lesions of the bed nucleus of the stria terminalis abolish behavioral heterogeneity in a differential fear conditioning paradigm. *Society for Neuroscience Abstracts*.
- Paz, R., Bauer, E.P., Paré, D. (2008) Nonlinear interactions between the basolateral amygdala and medial prefrontal cortex modulate perirhinal-entorhinal communication during learning. *Society for Neuroscience Abstracts*.
- Paz, R., Bauer, E.P., Paré, D. (2007) Learning-induced theta oscillations, phase locking and spike synchronization within the medial prefrontal cortex. *Society for Neuroscience Abstracts*.

- Bauer, E.P., Paz, R. Paré, D. (2007) Learning-related changes in coordinated fast oscillations (35-45 Hz) in the basolateral amygdala and rhinal cortices during the acquisition of a trace-conditioning task. *Cosyne: Computational and Systems Neuroscience*.
- Bauer, E.P., Paz, R. Paré, D. (2006) Learning-related changes in coordinated fast oscillations (35-45 Hz) in the basolateral amygdala and rhinal cortices during the acquisition of a trace-conditioning task. *Society for Neuroscience Abstracts*.
- Paz, R., Bauer, E.P., Paré, D. (2006) Learning-related changes in the activity of medial prefrontal and rhinal neurons during the acquisition of a trace conditioning task. *Society for Neuroscience Abstracts*
- Paz, R., Pelletier, J.G., Bauer, E.P., Paré, D. (2006) Emotional enhancement of memory via amygdala-driven facilitation of rhinal interactions. *Society for Neuroscience Abstracts*.
- Bauer, E.P., LeDoux, J.E., Nader, K. (2005) Amygdala LTP is sensitive to probability, as opposed to the coincidence, of pre- and postsynaptic activation. *Cosyne: Computational and Systems Neuroscience*.
- Bauer, E.P., LeDoux, J.E. (2004) Potentiation of inhibitory interneurons in the lateral amygdala is not input-specific. *Forum of European Neuroscience*; Lisbon, Portugal
- Burghardt, N.S., Bauer, E.P., McEwen, B.S., LeDoux, J.E. (2003) Different effects of acute and chronic treatment with tianeptine in the acquistion of conditioned fear. *Society for Neuroscience Abstracts*.
- Bauer, E.P., LeDoux, J.E. (2003) Potentiation of inhibitory neurons in the lateral amygdala is not input-specific. *Learning and Memory* meeting; *Cold Spring Harbour*.
- Bauer, E.P., LeDoux, J.E. (2002) Heterosynaptic potentiation of inhibitory transmission in the lateral amygdala. *Society for Neuroscience Abstracts*.
- Bauer, E.P., LeDoux, J.E., Nader, K. (2001) Pavlovian fear conditioning and associative LTP in the lateral amygdala are sensitive to the same stimulus contingencies. *Society for Neuroscience Abstracts*.
- Rodrigues, S.M., Bauer, E.P., Schafe, G.E., LeDoux, J.E. (2001) The mGluR5 metabotropic glutamate antagonist MPEP impairs the acquisition of conditioned fear and the induction of long-term potentiation in the lateral amygdala. *Society for Neuroscience Abstracts*.
- Bauer, E.P., Schafe, G.E., and LeDoux, J.E. (2000) Different induction protocols recruit NMDA and L-type calcium channel-dependent LTP in the lateral amygdala: correlation with fear memory. *Society for Neuroscience Abstracts*, 26:1253.
- Schafe, G.E., Atkins, C.M., Bauer, E.P., Sweatt, J.D., LeDoux, J.E. (2000) Blockade of ERK/MAP kinase activation in the amygdala impairs memory consolidation of Pavlovian fear conditioning. *Society for Neuroscience Abstracts*, 26:1252.
- Bauer, E.P., Weisskopf, M.G., and LeDoux, J.E. (1999) Excitatory and inhibitory LTP at thalamic input synapses to the lateral amygdala. *Society for Neuroscience Abstracts*, 25:879.
- Rubin, N., Bauer, E. and Reitzen, S. (1999) Scene segmentation occurs in two stages: experimental evidence and a model. *Invest. Ophth. and Vis. Sci. (Suppl.)*, 40, 4192.
- Bauer, E.P., George, S.A. (1997) NMDA reduces asymmetry of horizontal optokinetic nystagmus in frogs. *Society for Neuroscience Abstracts*, 22:452.

#### Other

Bauer, E.P. (2018) Hard feelings: a pair of neuroscientists finds that investigating emotion is easier done than said. *Science*, 360:1306.

### **Invited talks**

- "Amygdala circuits involved in fear learning and expression" (2020) Center for Developmental Neuroscience, College of Staten Island
- "Extended amygdala circuits involved in fear learning and expression" (2016) Hunter College, CUNY, Biological Sciences Seminar Series
- "Extended amygdala circuits involved in fear learning" (2015) City College of New York, Biology department seminar series
- "Extended amygdala circuits involved in fear learning" (2015) Hofstra University, Biology department seminar series
- "The extended amygdala mediates the effects of acute SSRIs on fear conditioning" (2013) Gordon Research Conferences, "Amygdala in Health and Disease"
- "Acute SSRI treatment enhances fear conditioning: a role for the extended amygdala" (2012) Pavlovian Society Conference
- "The bed nucleus of the stria terminalis determines inter-individual variations in anxiety and fear" (2009) Behavioral Neuroscience Journal Club, Columbia University

## Symposia organized

"Stress, anxiety and fear conditioning" (2012), Pavlovian Society Conference

# **Grant Activity**

Active Grants

Grant # 1R15MH122969-01 (Elizabeth Bauer PI)

National Institutes of Mental Health (NIMH) Academic Research Enhancement Award (AREA) (4/15/2020-4/14/2023)

Title: Regulation of fear conditioning by subicular inputs to the BNST

Total award amount: \$411,173

Prior Awards Now Terminated

#### External

Grant # 1R15MH107008-01A1 (Elizabeth Bauer PI)

National Institutes of Mental Health (NIMH) Academic Research Enhancement Award (AREA) (6/1/2016-5/31/2019)

Title: Modulation of fear conditioning by extended amygdala circuits

Total award amount: \$410,845

Grant # 1R15MH095032-01 (Elizabeth Bauer PI)

National Institutes of Mental Health (NIMH) Academic Research Enhancement Award (AREA) (7/1/2011-6/30/2014)

Title: Modulation of fear memory by corticotropin-releasing factor in the amygdala

Total award amount: \$392,415

Grant #: 5F32MH076640 (Elizabeth Bauer PI)

NIMH National Research Service Award (NRSA) Postdoctoral Fellowship (6/01/06-5/31/08)

Title: Amygdala and Prefrontal Control of the Rhinal Cortices

Amount of Award: \$99,224

Grant #: 1F31NS043899 (Elizabeth Bauer PI)

NIMH National Research Service Award (NRSA) Predoctoral Fellowship (9/1/02-8/31/04)

Title: mGluRs and Synaptic Plasticity in the Lateral Amygdala

Amount of Award \$70,260

NSF Predoctoral Fellowship (1998-2001)

Amount of Award: \$60,000

Internal

Barnard College Presidential Research Award (Elizabeth Bauer PI)

Awarded: May, 2018

Title: Interactions of the Neural Structures Underlying Fear and Anxiety

Total award amount: \$31,692

Barnard College Post-tenure Research Award (Elizabeth Bauer PI)

Total Award amount: \$6,000

Beckman Scholars Award (Rachel Nordlicht, undergraduate awardee)

2018-2019

Barnard Minigrant (Elizabeth Bauer PI)

2016-2018

Total award amount: \$8,000

Barnard SAPL Minigrant (Elizabeth Bauer PI)

2013-2014

Total award amount: \$8,000

### **Service to the College**

AMGEN Scholars Summer Research Program Section Leader; (2010-2014)

- Served on admissions committee
- Lead weekly classes for summer AMGEN students (10 weeks)
- Accompanied students to AMGEN Scholars National Symposium

Barnard College Center for Research on Women. Advisory Board. 2008-present.

Organized the Roslyn Silver Science Lecture; Speaker: Elisabeth Murray, NIH (October 2010)

#BarnardReads Moderator (2016)

Committee on Petitions and Academic Standing (Fall 2015-Spring 2017)

Committee on Honors (Fall 2014-Spring 2016)

Committee on Faculty Governance and Procedures, member

Elected Spring 2011: 2011-2012 academic year, spring 2013;

Member of Grievance Committee (Spring 2013)

Elected Spring 2017: 2017-2019

Faculty Representative to SRI for Neuroscience and Behavior (2019)

Faculty Representative to SP2 for the Neuroscience and Behavior Department (2020-current)

Member of the search committee for a Microbiologist (Biology); Spring 2009

Member of the search committee for a Computational Biologist (Biology); Fall 2018

Member of the search committee for a Neuroscientist (Neuroscience and Behavior); Fall 2018

Member of the search committee for Barnard College's Registrar; Spring 2017

Outside Member of the search committee for a Developmental Psychologist (Psychology); Spring 2009

Outside Member of the search committee for a Biochemist (Chemistry); Fall 2018

Pre-majors Advisory Committee: (Spring 2018)

- 2008-2009 5 Major and Pre-major advisees2009-2010 18 Major and Pre-major advisees
- 2010-2011 21 Major and Pre-major advisees
- 2011-2012 23 Major and Pre-major advisees
- 2012-2013 3 Major and Pre-major advisees (on leave this year)
- 2013-2014 12 Major and Pre-major advisees (on leave this year)
- 2014-2015 16 Major and Pre-major advisees
- 2015-2016 32 Major and Pre-major advisees
- 2016-2017 36 Major and Pre-major advisees
- 2017-2018: 39 Major and Pre-major advisees
- 2018-2019: 28 Major and Pre-major advisees
- 2019-2020: 27 Major and Pre-major advisees
- 2020-2021: 29 Major and Pre-major advisees

## **Service to the Profession**

Peer Review, Scientific Journals:

Behavioral Brain Research

Biological Psychiatry

European Journal of Neuroscience

Experimental Brain Research

Hippocampus

Journal of Neurophysiology

Journal of Psychopharmacology

**JoVE** 

**Nature Communications** 

Neuroscience Letters

Neuropharmacology

Neuropsychopharmacology

Physiology and Behavior

**PlosONE** 

Progress in Neuro-Psychopharmacology and Biological Psychiatry

Psychoneuroendocrinology

Peer Review, Grant Agencies:

Biotechnology and Biological Sciences Research Council (United Kingdom)

Human Frontier Science Program

National Institutes of Health

National Science Foundation