# Samantha Gayle Malone

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## Education

**2014 – 2017**
**B.S.,** Psychology: Behavioral Neuroscience, East Tennessee State University
**Honors:** Summa cum laude (GPA: 3.98)
**Minor:** Biology
**Senior Honors Thesis:** Positive Modulation of Adenosine A2A Receptors Reduces Nicotine Self-Administration in Rats.
**Mentors:** Dr. Matthew Palmatier and Dr. Gerald Deehan

**2018 – 2020**
**M.S.**, Experimental Psychology, University of Kentucky
**Concentration:** Cognitive Neuroscience (GPA: 4.0)
**Graduate Certificates:** Applied Statistics (GPA: 4.0)
**Thesis:** Escalation and Reinstatement of Fentanyl Self-Administration in Male and Female Rats
**Mentor:** Dr. Michael T. Bardo

**2021 –**
**Ph.D. (In Progress)**, Experimental Psychology, University of Kentucky
**Concentration:** Cognitive Neuroscience (GPA: 4.0)
**Graduate Certificates:** Biostatistics (In Progress, GPA: 4.0)
**Dissertation:** Calcium Imaging of the Central Amygdala after Fentanyl Escalation
**Mentors:** Dr. Michael T. Bardo and Dr. Pavel I. Ortinski

## Career Statement

After obtaining my doctoral degree, I plan to advance towards a career in non-profit, science communication with a focus on outreach, advocacy, policy, and writing. Through this career path, I aspire to connect people with science, making biological and health science more easily accessible to the public and improving science literacy in and around Appalachia. I'm excited to utilize the knowledge and training I've accumulated throughout my academic career to enrich communities in ways that make science more approachable, inclusive, and understandable.

## Research Statement

My research is focused on developing novel and effective preclinical models of opioid use disorder (OUD), with a concentration on escalation, withdrawal, relapse, sex differences, and the intricate social factors involved in OUD. I am fascinated by the impact of escalated intake on relapse and withdrawal in OUD, and the overlapping brain areas associated with these factors. I am also interested in using statistics to inform treatment development and policy. Through my work, I hope to further improve the understanding of OUD by creating rodent models that better translate to the human condition.

## Research Experience

**2015 – 2018**
**Undergraduate Research Assistant**
Palmatier Associative Pharmacology Laboratory, Psychology Dept., ETSU
**Description:** I studied the role of incentive motivation in mediating drug dependence. My work examined the incentive amplifying effects of nicotine and other drugs of abuse, with a focus on understanding the neural and behavioral mechanisms underlying this phenomenon.

**2016 – 2018**
**Undergraduate Research Assistant**
Deehan Pharmacology of Addiction Laboratory, Psychology Dept., ETSU
**Description:** I studied the effects of alcohol on neurotransmitter levels and on the development of neural circuitry during adolescence.

**2018 –**
**Graduate Research Assistant**
Bardo Laboratory, Psychology Dept., University of Kentucky
**Description:** I am working to determine how environmental factors and patterns of opioid use, such as social context and escalation, confer vulnerability to opioid use disorder (OUD), heightened withdrawal, and relapse. I am currently interested in understanding whether the escalation of fentanyl intake, a model of the loss of control over intake seen in OUD, has an impact on susceptibility to stress-, drug-, and cue-induced reinstatement, and how the central amygdala becomes dysregulated during abstinence following fentanyl use.
***Undergraduate mentees:** Rebecca Buster, Emily Punzal, Alexia Milligan, Luke Sawyers, & Joshua Hales ***High School mentees:** Joyce Yang

## Publications

***Indicates co-first authorship**

1. **Malone, S.G**., Keller, P.S., Hammerslag, L.R., & Bardo, M.T. (2021). Escalation and reinstatement of fentanyl self-administration in male and female rats. *Psychopharmacology*, *238*(8), 2261–2273. https://doi.org/10.1007/s00213-021-05850-7
2. Bardo, M.T., Hammerslag, L.R., & **Malone, S.G.** (2021). Effect of early life social adversity on drug abuse vulnerability: Focus on corticotropin-releasing factor and oxytocin. *Neuropharmacology*, 191, 108567. doi: https://doi.org/10.1016/j.neuropharm.2021.108567
3. ***Malone, S.**, *Custodio, L., Bardo, M.T., & Turner, J.R. (2021). Nicotine and Opioid Co-Dependence: Findings from Bench Research to Clinical Trials. *Neuroscience and biobehavioral reviews, S0149-7634*(21)00578-9. https://doi.org/10.1016/j.neubiorev.2021.12.030
4. Hammerslag, L.R., Humburg, B.A., **Malone, S.G.,** Beckmann, J.S., Saatman, K.E., Grinevich, V., & Bardo, M.T. (2022). Peer-induced cocaine seeking in rats: Comparison to nonsocial stimuli and role of paraventricular hypothalamic oxytocin neurons. *Addiction biology, 27*(5), e13217. https://doi.org/10.1111/adb.13217
5. ***Malone, S.G.**, * Shaykin, J.D., Stairs, D.J., & Bardo, M.T. (2022). Neurobehavioral effects of environmental enrichment and drug abuse vulnerability: An updated review. *Pharmacology, biochemistry, and behavior, 221*, 173471. https://doi.org/10.1016/j.pbb.2022.173471
6. **Malone, S.G.**, Hammerslag, L.H., Carbone, M., & Bardo, M.T. (in preparation). Peer-induced reinstatement of remifentanil seeking.

## National Conference Presentations and Posters

***Indicates student mentees**

1. Smith, A.L., Williams, E.A., Bradley, C.A., **Malone, S.G.**, Patterson, A.K., Sanders, E.M., & Palmatier, M.I. (2016). *Tobacco flavor additives established as conditioned reinforcers promote nicotine self-administration in rats.* Poster presentation at SfN, San Diego, CA.
2. Bradley, C.A., Sanders, E.M., Patterson, A.K., **Malone, S.G**., & Palmatier, M.I. (2017, June). *Mechanisms of caffeine self-administration in rats*. Poster presentation at CPDD, Montreal, Quebec.
3. Golson, J.M., Patterson, A.K., Sanders, E.M., **Malone, S.G.,** Bradley, C.A., Palmatier, M.I. (2017, June). *Effect of adolescent caffeine self-administration on adult nicotine self-administration in rats.* Poster presentation at CPDD, Montreal, Quebec.
4. Bradley, C.A., Patterson, A.K., Smith, A.L., **Malone, S.G.**, & Palmatier, M.I. (2017, November). *Mechanisms of the reinforcement enhancing effects of caffeine in rats.* Poster presentation at SfN, Washington D.C.
5. Smith, A.L., Bradley, C.A., Patterson, A.K., Sanders, E.M., Goldson, J.M., Bailey, C.S., **Malone, S.G.**, & Palmatier, M.I. (2017, November). *Flavor conditioned reinforcers promote dependence-like behavior in rats self-administering nicotine.* Poster presentation at SfN, Washington D.C.
6. Deehan, G.A., Patterson, A.K., Smith, A.L., Bradley, C.A., **Malone, S.G.**, Brown, R.W., & Palmatier, M.I. (2017, November). *The effect of flavor conditioned reinforcers and nicotine on extracellular dopamine levels in the nucleus accumbens following nicotine self-administration.* Poster presentation at SfN, Washington D.C.
7. Bailey, C.S., Patterson, A.K., Bradley, C.A, **Malone, S.G.**, & Palmatier, M.I. (2017, November). *Investigating the temporal relationship between chronic mild stress and alcohol intake in rats.* Poster presentation at SfN, Washington D.C.
8. **Malone, S.G.**, Golson, J.M., Bradley, C.A., Brown, R.W., Bailey, C.S., & Palmatier, M.I. (2017, November). *Positive modulation of adenosine A2A receptors reduces nicotine self-administration in rats.* Poster presentation at SfN, Washington D.C.
9. **Malone, S.G.**, Bradley, C.A., Brown, R.W., Bailey, C.S., & Palmatier, M.I. (2018, February). *Positive modulation of adenosine A2A receptors reduces nicotine self-administration in the neonatal quinpirole model of schizophrenia.* Poster presentation at the SRNT, Baltimore, MD.
10. **Malone, S.G.,** Hammerslag, L.R., & Bardo, M.T. (2019, March). *Escalation and reinstatement of fentanyl seeking in rats.* Poster presentation presented at SURE, Lexington, KY.
11. **Malone, S.G., ***Buster, B.R., Hammerslag, L.R., & Bardo, M.T. (2019, April). *Escalation and reinstatement of fentanyl seeking in rats.* Poster presentation presented at BGSFN, Lexington, KY.
12. **Malone, S.G., ***Buster, B.R., Hammerslag, L.R., & Bardo, M.T. (2019, April). *Escalation and reinstatement of fentanyl seeking in rats.* 1-minute poster pitch presented at CCTS, Lexington, KY.
13. **Malone, S.G.,** Hammerslag, L.R., & Bardo, M.T. (2019, June). *Escalation and reinstatement of fentanyl seeking in rats.* Oral presentation at CPDD, San Antonio, TX.
14. **Malone, S.G.,** Hammerslag, L.R., & Bardo, M.T. (2019, October). *Escalation and reinstatement of fentanyl seeking in male and female rats.* Poster presentation at SfN, Chicago, IL.
15. **Malone, S.G., ***Punzal, E.B., Hammerslag, L.R., & Bardo, M.T. (2019, November). *Escalation and reinstatement of fentanyl seeking in male and female rats.* Poster presentation presented at the TODD Symposium, Lexington, KY.

16. **Malone, S.G.,** *Punzal, E.B., Hammerslag, L.R., & Bardo, M.T. (2020, March). *Escalation and reinstatement of fentanyl seeking in male and female rats.* Poster presentation presented at SURE, Lexington, KY.
17. **Malone, S.G.,** Hammerslag, L.R., & Bardo, M.T. (2020, June). *Escalation and reinstatement of fentanyl seeking in male and female rats.* Oral presentation at CPDD, Online.
18. **Malone, S.G.,** Keller, P.S., Hammerslag, L.R., & Bardo, M.T. (2021, March). *Escalation and reinstatement of fentanyl seeking in male and female rats.* Data blitz presentation at SURE, Online.
19. *Punzal, E.B., **Malone, S.G.,** & Bardo, M.T. (2021, June). *Escalation and footshock-induced reinstatement of fentanyl seeking in male and female rats.* Poster presentation at SURE, Online.
20. **Malone, S.G.** (2021, April). *Outstanding graduate teaching assistants: The roles we fill and the challenges we face.* Keynote presentation at the NAGPS Midwest Regional Conference, Online.
21. **Malone, S.G.,** Hammerslag, L.R., & Bardo, M.T. (2021, June). *Escalation and footshock-induced reinstatement of fentanyl seeking in male and female rats.* Poster presentation at CPDD, Online.
22. **Malone, S.G.,** Hammerslag, L.R., Dimeo, S., Carbone, M., & Bardo, M.T. (2021, November). *Peer-Induced Reinstatement of Remifentanil Seeking.* Poster presentation at SfN, Online.
23. **Malone, S.G.,** Hammerslag, L.R., Dimeo, S., Carbone, M., & Bardo, M.T. (2022, March). *Peer-Induced Reinstatement of Remifentanil Seeking.* Data blitz at SURE, Lexington, KY.
24. **Malone, S.G.,** Hammerslag, L.R., Dimeo, S., Carbone, M., & Bardo, M.T. (2022, June). *Peer-Induced Reinstatement of Remifentanil Seeking.* Poster presentation at EBPS, Rome, Italy.

## Research and Training Grants

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| **2020-2021** | Substance Use Priority Research Area (SUPRA) Super Students Grant ($6,000), UKY |
| **2020-2022** | NIDA T32 DA035200: Research Training in Drug Abuse Behavior, PI-Dr. Craig Rush, UKY |
| **2021-2022** | SUPRA Graduate/Professional Student Grant ($6,000), UKY |
| **2022-2024** | NIDA F31 DA057050: Calcium Imaging of the CeA after Fentanyl Escalation, UKY |

## Other Honors and Awards

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| **2014-2017** | Dean's List, ETSU |
| **2014-2015** | Amy Hull Ransdell Scholarship ($1000), ETSU |
| **2014-2015** | Ruritan National Foundation Scholarship ($600), ETSU |
| **2014-2017** | Dean's Academic Performance Scholarship ($3000), ETSU |
| **2014-2017** | Tennessee Grocer's Association Scholarship ($1250), ETSU |
| **2017** | Psychology Honors-In-Discipline Scholarship ($10000), ETSU |
| **2020** | Featured on UKNOW: UK's Substance Use Research Day Highlights Work of UK Faculty and Students |
| **2020** | Spring GSC Travel Award ($300), UKY |
| **2021** | Outstanding Cognitive Neuroscience Graduate Student Award, UKY |
| **2021** | Wildcat Style Event Grant ($250), UKY |
| **2021** | Spring GSC Travel Award ($500), UKY |
| **2021** | GSC Pillar Award for Academic Success, UKY |

## Professional Affiliations and Roles

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| **2015-2016** | Quidditch Sports Club, ETSU | Treasurer |
| **2016-2017** | Quidditch Sports Club, ETSU | President |
| **2016-** | Society for Neuroscience (SfN) | Student Member |
| **2017-** | College on Problems of Drug Dependence (CPDD) | Member In-training |
| **2018-** | Bluegrass Society for Neuroscience (BGSFN) | Student Member |
| **2018-** | Substance Use Research Event (SURE) | Student Member |
| **2018-** | Center for Clinical and Translational Science Conference (CCTS) | Student Member |
| **2019** | Life After UK Conference | Panelist |
| **2020** | Women in Neuroscience Club | Grad. Student Advisor |
| **2020-** | Graduate Student Congress (GSC) | Program Representative |
| **2020-** | GSC: Professional Development and Networking Committee | Program Representative |
| **2020** | Future Graduate and Professional Student Leaders Conference | Organizer |
| **2020** | Life After Grad School Conference | Organizer |
| **2021** | National Association of Graduate and Professional Students (NAGPS) | Assistant Director of Outreach |
| **2021** | NAGPS Midwest Regional Conference | Keynote Speaker |
| **2021** | GSC: Mental Health Awareness Committee | Program Representative |
| **2021** | UKY Mental Health Awareness Week | Organizer |
| **2021** | Life After Grad School Conference | Organizer |
| **2022-** | American Statistical Association (ASA) | Student Member |

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| **2022-** | American Association for the Advancement of Science (AAAS) | Student Member |
| **2022** | Psychology Department Chair Advisory Appointment Committee | Grad. Student Representative |
| **2022-** | S-Stem Scholarship Program | Grad. Student Mentor |
| **2022-** | Kentucky Advocates for Science Policy and Research (KASPR) | Student Member |

## Teaching Experience

***Teaching Assistant – University of Kentucky***

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| **Fall 2018** | Behavioral Genetics | Neuropharmacology: Drugs and Behavior |
| **Spring 2019** | Behavioral Genetics (*class prep.)* | Neuropharmacology: Drugs and Behavior |
| **Summer 2019** | Behavioral Genetics (*class prep.)* | |
| **Fall 2019** | Behavioral Neuroscience Lab | |
| **Spring 2020** | Behavioral Genetics | Neuropharmacology: Drugs and Behavior |

## Software and Programming Experience

***Software/Tools:*** SAS; Prism; Med-PC; RStudio; JMP; SPSS; Clip Studio Paint; HCImage Live; OBS Studio; ImageJ; Visual Studio; Anaconda; Jupyter Notebook; Git Hub; Galaxy; Bitvise. ***Programming/Languages:*** SAS; R; SPSS; Med-PC