

# SAMANTHA AYOUB PHD.

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San Diego, CA

## EDUCATION

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- PhD.** University of Guelph Oct 2021  
Psychology Department, Collaborative Neuroscience Program  
Advisors: Dr. Linda Parker & Dr. Francesco Leri
- MSc.** University of Guelph. Aug 2018  
Psychology Department, Collaborative Neuroscience Program.  
Advisor: Dr. Francesco Leri
- Honours BA.** Wilfrid Laurier University Aug 2015  
Psychology Department, Research Specialist Program  
Advisor: Dr. Paul Mallet

## RESEARCH EXPERIENCE

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- PhD Thesis (Psychology + Neuroscience).** University of Guelph Sept 2019- Oct 2021  
Advisors: Dr. Linda Parker & Dr. Francesco Leri  
Title: *“The role of Oleoyl-glycine and Oleoyl-alanine in opioid withdrawal behaviour”*
- Tested fatty acid amides on somatic and affective morphine withdrawal behaviours using place conditioning, self-administration, and saccharin preference testing
  - Skills accrued: research design development alongside my advisors, surgical preparations (intravenous cannulations), intravenous self-administration protocol, saccharin preference testing, scholarly manuscript preparation and dissemination, lab supervision and training of two undergraduate Honours thesis student projects
- Graduate Research Assistant.** University of Guelph. Jan 2019 – Sept 2019  
Working under Dr. Linda Parker I helped to investigate the effect of oleoyl glycine and synthetic analogs on morphine -withdrawal and -reward behaviours using place conditioning and rodent behavioural assays of anxiety
- Skills accrued: place conditioning (preference, aversion), delivery of intracranial microinfusions, assist in rodent transcardial perfusions, histology to verify probe implantation, light-dark box emersion test, elevated plus maze, conditioned taste avoidance, somatic behavioural testing and scoring
- MA Thesis (Psychology + Neuroscience).** University of Guelph Sept 2016 - 2018  
Advisor: Dr. Francesco Leri  
Title: *“The effect of high-fructose corn syrup on ethanol taking, seeking and palatability in rats”*

- Tested HFCS on ethanol consumption and ethanol palatability in rats using self-administration and taste reactivity paradigms
- Skills accrued: research design development alongside my advisor, surgical preparations (intraoral cannulations), intraoral self-administration protocol, trunk blood collection, brain tissue extraction and fixing, scholarly manuscript preparation and dissemination, lab supervision and training of one undergraduate Honours thesis student project

**Honours Undergraduate Thesis (Psychology).** Wilfrid Laurier University Sept 2014 - 2015

Advisor: Dr. Paul Mallet

Title: “Administration of delta-9-tetrahydrocannabinol fails to alter optimal choice learning in rats performing the rodent gambling task”

- Tested THC on decision-making in rats using operant responding for food
- Skills accrued: research design development alongside advisor, MED-PC programming and behavioural data collection, statistical analysis (SPSS), manuscript writing

**Undergraduate Research Assistant.** Wilfrid Laurier University Apr 2013 – Apr 2015

Advisors: Dr. Angelo Santi, Dr. Paul Mallet.

- Responsible for data collection, lab maintenance, and literature reviews pertinent to multiple studies in the Behavioural Neuroscience Department
- Skills accrued: WHIMIS training, CCAC ethics training, animal handling and care training, reviewing scientific literature, suspending and injecting psychoactive drugs, operant and place conditioning, assist in post-mortem tissue extraction, immunohistochemistry (c-FOS), tissue slicing (cryostat), tissue microscopy

**TEACHING EXPERIENCE**

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**The University of Guelph, Guelph**

Sept 2017 to Dec 2021

**Lab Instructor,** Department of Psychology

- PSYC\*3410: Behavioural Neuroscience II (Winter semesters only)
- Taught undergraduate psychology and/or neuroscience majors the anatomy of a mammalian brain through slicing and dissection techniques
- Involved in exam preparations and execution

**The University of Guelph, Guelph**

Nov 2020 & Feb 2021

**Invited Lecturer,** Department of Psychology

- F20 – Invited by Dr. Jenn Murray to give the lecture "Synaptic Transmission" to students in Introduction to the Nervous System/NEUR\*2000 on Nov 5th, 2020
- W21 – Invited by Dr. Parker Holman to give the lecture "The Endocannabinoid System and Reward" to students in Behavioural Neuroscience II/PSYC\*3410 on Feb 5th, 2021

**Durham College, Oshawa**

Sep 2018 to Dec 2018

**Instructor,** Department of Science and Technology

- Courses taught: Technical Report Writing (year 1) and Career Development (year 2)

**The University of Guelph, Guelph**

Jan 2018 to Apr 2018

**Lab Instructor**, Department of Psychology

- PSYC\*2360: Psychological Research Methods and Statistics
- Taught undergraduate psychology students the basics of research design, execution, data management, statistical analyses and scientific writing

**The University of Guelph, Guelph.**

Sept 2016 to Present

**Graduate Teaching Assistant**, Department of Psychology

- F16 – Sensation and Perception – PSYC\*2390: Lana Trick
- F16 – Introduction to Psychology – PSYC\*2390: Dan Meegan
- W17 - Introduction to Developmental Psychology – PSYC\*2450DE: Jeffrey Yen.
- W17 – Sensation and Perception – PSYC\*2390: Lana Trick
- F17 – Behavioural Neuroscience II – PSYC\*3410: Elena Choleris
- W18 – Personality – PSYC\*2740: Stephen Lewis
- W18 – Psychological Methods and Statistics – PSYC\*2360: Carol-Anne Hendry
- F19 – Introduction to the Nervous System – NEUR\*2000: Jenn Murray
- W20 – Introduction to Psychology – PSYC\*1000DE: Anneke Olthof
- W20 – Behavioural Neuroscience II – PSYC\*3410: Elena Choleris
- F20 – Introduction to the Nervous System – NEUR\*2000: Jenn Murray
- W21 – Behavioural Neuroscience II – PSYC\*3410: Parker Holman

**Wilfrid Laurier University, Waterloo**

Sept 2014 to April 2015

**Instructional Assistant**, Department of Computer Science

- Course: Information Processing with Microcomputer Systems
- Provided guided hands-on learning to students interested in basic microcomputer hardware and software (i.e. heavy focus on Microsoft Office Suite software)

## **PROFESSIONAL DEVELOPMENT**

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### **Publications**

**Ayoub, S.M.**, Piscitelli, F., Silvestri, C., Limebeer, C.L. Rock, E.M., Smoum R., ...Parker, L.A. (2021). Spontaneous and naloxone-precipitated withdrawal behaviours from chronic opiates are accompanied by changes in N-Oleoylglycine and N-Oleoylalanine levels in the brain and ameliorated by treatment with these mediators. *Frontiers in Pharmacology*.

Horman, T., **Ayoub, S.**, & Leri, F. (2021). Evidence of hypoglycemic anhedonia and modulation by bupropion in rats. *Pharmacology, Biochemistry, and Behavior*, 203, 173120. doi:<http://dx.doi.org/subzero.lib.uoguelph.ca/10.1016/j.pbb.2021.173120>

**Ayoub, S. M.**, Smoum, R., Farag, M., Atwal, H., Collins, S. A., Rock, E. M., Limebeer, C. L., Piscitelli, F., Iannotti, F., A., Lichtman, A. H., Leri, F., Di Marzo, V., Mechoulam, R., Parker, L. A. (2020). Oleoyl alanine (HU595): A stable monomethylated oleoyl

glycine interferes with acute naloxone precipitated morphine withdrawal in male rats. *Psychopharmacology*, 237(9), 2753-2765.  
doi:http://dx.doi.org.subzero.lib.uoguelph.ca/10.1007/s00213-020-05570-4

**Ayoub, S. M.**, Minhas, M., Lapointe, T., Limebeer, C. L., Parker, L. A., & Leri, F. (2020). Effects of high fructose corn syrup on ethanol self-administration in rats. *Alcohol*, 87, 79-88. doi:http://dx.doi.org.subzero.lib.uoguelph.ca/10.1016/j.alcohol.2020.05.003

Rock, E. M., **Ayoub, S. M.**, Limebeer, C. L., Alexia, G., Wills, K. L., DeVuono M. V., Smoum, R., Di Marzo, V., Lichtman, A. H., Parker, L. A. (2020). Acute naloxone-precipitated morphine withdrawal elicits nausea-like somatic behaviors in rats in a manner suppressed by N-oleoylglycine. *Psychopharmacology*, 237(2), 375-384.  
doi:http://dx.doi.org.subzero.lib.uoguelph.ca/10.1007/s00213-019-05373-2

### **Oral Presentations**

**Ayoub, S. M.**, Smoum, R., Farag, M., Atwal, H., Limebeer, C. L., Rock, E. M., Collins, S. A., Piscitelli, F., Iannotti, F., DiMarzo, V., Leri, F., Lichtman, A., Mechoulam, R., Parker, L. A. (2021). The effect of Oleoyl-alanine on opioid withdrawal behaviours in male Sprague Dawley rats. *International Cannabinoid Research Society Symposium*, Guelph, ON, CAN. July 2021.

**Ayoub, S. M.**, Smoum, R., Farag, M., Atwal, H., Limebeer, C. L., Rock, E. M., Collins, S. A., Piscitelli, F., Iannotti, F., DiMarzo, V., Leri, F., Lichtman, A., Mechoulam, R., Parker, L. A. (2021). The effect of Oleoyl-alanine on opioid withdrawal behaviours in male Sprague Dawley rats. *Guelph Neuroscience Day meeting*, Guelph, ON, CAN. May 2021.

**Ayoub, S. M.**, Smoum, R., Farag, M., Atwal, H., Limebeer, C. L., Rock, E. M., Collins, S. A., Piscitelli, F., Iannotti, F., DiMarzo, V., Leri, F., Lichtman, A., Mechoulam, R., Parker, L. A. (2021). The effect of Oleoyl-alanine on opioid withdrawal behaviours in male Sprague Dawley rats. *University of Guelph's Interdisciplinary Psychology Graduate Symposium*, Guelph, ON, CAN. April 2021.

\* *Best talk recipient*

**Ayoub, S. M.**, Minhas, M., Leri, F. (2018). Effect of high fructose corn syrup on the reinforcing and hedonic properties of ethanol in rats. Presented by Leri, F. at *the International Study Group Investigating Drugs as Reinforcers*, San Diego CA, USA. June 2018.

### **Poster Presentations**

**Ayoub, S. M.**, Smoum, R., Farag, M., Atwal, H., Limebeer, C. L., Rock, E. M., Collins, S. A., Piscitelli, F., Iannotti, F., DiMarzo, V., Leri, F., Lichtman, A., Mechoulam, R., Parker, L. A. (2019). The effect of oleoyl alanine on opioid withdrawal behaviours in

male Sprague Dawley rats. *The International Cannabinoid Research Society Symposium*. Bethesda, MA, USA. July 2020. \* cancelled due to COVID-19

**Ayoub, S. M.**, Limebeer, C. L., Smoum, R., Mechoulam, R., Parker, L. A. (2019). The effect of oleoyl glycine and methyl oleoyl glycine (HU595) on the rewarding- and withdrawal- like effects of opioids in rats. *The International Cannabinoid Research Society Symposium*. Bethesda, MA, USA. July 2019.

**Ayoub, S. M.**, Limebeer C. L, Mechoulam, R., Parker, L. A. (2019). The effect of oleoyl glycine on the reinstatement of previously extinguished morphine place preference in rats. *Southern Ontario Neuroscience Association meeting*, Windsor, ON, CAN. May 2019.

**Ayoub, S. M.**, Limebeer C, Parker L, Mechoulam R. (2019). The effect of oleoyl–glycine on reinstatement of previously extinguished morphine place preference in rats. *University of Guelph’s Annual Neuroscience Day meeting*, Guelph, ON, CAN. May 2019.

**Ayoub, S. M.**, Minhas, M., Leri, F. (2018). The intraoral self-administration of sweetened alcohol in laboratory rats. *Southern Ontario Neuroscience Association meeting*, Guelph, ON, CAN. May 2018.

Cook, A., **Ayoub, S. M.**, Leri, F. (2018). Sweetened alcohol: the problem and its possible solution? *Southern Ontario Neuroscience Association*, Guelph, ON, CAN. May 2018.

**Ayoub, S. M.**, Minhas, M., Leri, F. (2017). High fructose corn syrup in alcoholic beverages? A study in laboratory rats. *The International Society for Neuroscience meeting*. Washington D.C, USA. November 2017.

**Ayoub, S. M.**, Minhas, M., Leri, F. (2017). The intraoral self-administration of sweetened alcohol in laboratory rats. *University of Guelph’s Annual Neuroscience Day meeting*, ON, CAN. May 2017.

**Ayoub, S. M.**, Mallet, P. E. (2015). Administration of delta-9-tetrahydrocannabinol fails to alter optimal choice learning in rats performing the rodent gambling task. *Southern Ontario Neuroscience Association*, ON, CAN. May 2015.

## HONORS AND AWARDS

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International Cannabinoid Research Society Travel Award 2019, 2020, 2021

\* Covers meeting’s registration

Dean’s Scholarship PhD (College of Social and Applied Human Sciences) 2020  
\$ 5,000/ year

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|----------------------------------------------------------------------------|------------|
| Teaching Assistant's Award (Council of Canadian Departments of Psychology) | 2020       |
| \$ 100                                                                     |            |
| Board of Graduate Studies Research Scholarship                             | 2017, 2018 |
| \$ 2,000/ year                                                             |            |
| Dean's Scholarship MSc (College of Social and Applied Human Sciences)      | 2017, 2018 |
| \$ 2,500/ year                                                             |            |
| FOSSA Research Assistantship Scholarship                                   | 2014, 2015 |
| \$1,000/ year                                                              |            |

## **VOLUNTEER EXPERIENCE**

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### **Graduate Student Association, General Director of Psych Depart. – *University of Guelph***

2017 – Current

- Liaised between graduate students and university administration on important institutional matters
- Educated graduate students about available recourses on campus
- Attended monthly board meetings
- Prepared and edited the graduate student association bylaws for a ratification vote

### **Psychology Graduate Student Association, Member – *University of Guelph***

2018, 2020

- Encouraged cohesion within the interdisciplinary psychology department by planning various social and academic events
- Assisted with organizing Psychology Graduate Student Journal Club for 2020 school year

### **Graduate Student Association, Finance Committee Member – *University of Guelph***

2018 - 2019

- Reviewed and granted graduate student travel and family care bursaries

### **Intramural sports – *University of Guelph***

2018 - 2020

- Volleyball, Softball, Soccer, Ball Hockey

### **Society for Undergraduate Research Outreach, Member – *Wilfrid Laurier University***

2014 - 2015

- Accrued funds for needs-based scholarships and supported undergraduates interested in learning about research

## **PROFESSIONAL MEMBERSHIPS**

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### **Canadian Consortium for the Investigation of Cannabis**

- Member since 2020

**International Cannabinoid Research Society Member**

- Member since 2019

**International Society for Neuroscience**

- Membership active for 2017, 2018

**Southern Ontario Neuroscience Association**

- Membership active for 2015, 2018, 2019

**EQUITY, DIVERSITY AND INCLUSION STATEMENT**

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Having personally experienced inequalities as a first-generation female scholar from a mixed heritage, I am committed to enhancing equity, diversity and inclusion within the institutions and systems for which I attend. My efforts include dedication to those with whom I share similar experiences in addition to those whose experiences I will never understand.

During my undergraduate degree at Wilfrid Laurier University, I participated in the organization of funds for research scholarships for students with financial need as an integral member of the Society for Undergraduate Research Outreach. Here, I was also responsible for disseminating free resources to undergraduate students interested in learning more or becoming involved in research at the University.

During my graduate studies at the University of Guelph, I held positions on the board of directors for both the Psychology and General Graduate Student Associations (GSA). In both roles, I ensured graduate students had an approachable and accessible space to discuss academic concerns and subsequently communicated these concerns to the Board of Directors to advocate for change and enhance EDI principles. In the General GSA, I was also elected to be a member of the finance committee, where I was responsible for reviewing and granting graduate students with compassionate bursaries based on travel, child-care, and emergency situations.

Outside of academia, I have volunteered as an ESL tutor at my local community center, where I supported the integration of recently immigrated grade school children into the classroom. Additionally, I also volunteered at multiple long-term care facilities, where I assisted in program planning and implementation.

Together, these experiences have exposed me to diverse groups of individuals, from whom I am grateful to have learned. I seek to continue acknowledging the barriers and inequalities that remain, and become a better advocate for EDI throughout my career.