MURC | MULTIDISCIPLINARY UNDERGRADUATE RESEARCH CONFERENCE

HOW TO WRITE AN ABSTRACT

MURC 2020 | students.ubc.ca/murc

What is an abstract?

An abstract is generally a short, concise paragraph ranging from 200-500 words that acts to provide the reader with an overview of your project.

For the case of MURC, the abstract word limit is 250 words. This is an opportunity for you to capture the interest of the reader and create a strong impression. It usually includes a brief summary of background research, methods used in the study, the results and the implications of the results.

How should I structure my abstract?

1. What is the signficance of my study?
   This can be thought of as the motivation behind the study.

2. Problem/knowledge gap/hypothesis
   What is your study trying to address?
   What is your main hypothesis?

3. Methods
   How did you try to answer this question/address this problem?

4. Results
   What did you find?

   NOTE: If you are doing a theoretical project in which you have not obtained results, you can include your expected results in this section. E.g. "We expect to see..."

5. Implications/discussions
   What are the implications of your results?

Do

- Create a concise title that is interesting and descriptive of the research.
- Make sure you are relaying important themes
- Make sure you are writing for your intended audience - remember that MURC has a generalist audience!
- Have someone proofread your abstract
- Use relevant keywords

Don't

- Avoid going into too much detail about statistical methods
- Don't use too much jargon or field specific language
- Include reference citations
- Exceed the allotted word count (250 words in the case of your MURC abstract)

More Resources

In these links you can find a more comprehensive list of tips and things to consider when writing an abstract:

Guidelines for Abstract Preparation
Some Do's and Don'ts for Writing Abstracts
Tips that Will Make Your Abstract a Success

Attend an Abstract Writing Workshop

Write or revise a draft of your MURC abstract, and receive feedback from the workshop facilitators and other participants.

For more information, please visit students.ubc.ca/murc.

Sample Abstract from Undergraduate Theoretical Research Projects:

In an abstract for a theoretical project, there is a greater emphasis on background and methods, as these projects have no current results

Background
Knowledge gap
Hypothesis
Methods
Expected results
Implications of findings

Example 1

Amyotrophic lateral sclerosis (ALS) is characterized by the progressive degeneration of motor neurons, with the most common mutation in familial ALS occuring in the C9orf72 gene. In the central nervous system, astrocytes are glial cells critical to maintaining homeostasis and trophic support for motor neurons. Astrocytes switch to a reactive pro-inflammatory state during ALS pathogenesis, losing their supportive neuronal functions. Astrocytic pro-inflammatory cytokines, or immune signalling molecules, have been implicated in ALS, although their specific role in disease onset is currently unknown. We hypothesize that astrocytes exist in a pro-inflammatory state during early disease pathogenesis. We will use transgenic zebrafish, with astrocytes labeled by a green fluorescent protein. To model the ALS-like phenotype in zebrafish, we will introduce the C9orf72 gene mutation. To examine the reactivity of astrocytes during early pathogenesis, we will use live imaging techniques to characterize their reactive morphology. To investigate the inflammatory state, we will isolate astrocytes using fluorescence-activated cell sorting (FACS) at three time points during early disease pathogenesis. We will quantify levels of pro-inflammatory and anti-inflammatory cytokines to determine the inflammatory state of astrocytes at each time point. We expect to observe that astrocytes will be in a reactive morphology during early stages of ALS pathogenesis and will present a predominantly pro-inflammatory phenotype. These results will elucidate the inflammatory profile of astrocytes underlying pathogenesis which may provide novel insights regarding initiating factors in ALS. Future research may lead to therapeutic strategies targeting the pro-inflammatory state of astrocytes during early stages of motor neuron degeneration.

Imani Farahani N, Li M, Morris J. (2018) A Proposed Study Investigating the Inflammatory State of Astrocytes During Early Onset of Amyotrophic Lateral Sclerosis (ALS). Poster presented at: 2018 UBC Multidisciplinary Undergraduate Research Conference (MURC)

Example 2

Over the past century, the rate of cesarean delivery has risen in numerous countries around the world. This is seen in many populous countries, such as the United States, where the rate of cesarean delivery has risen by 16.2% since 2007. In China, this rate is approaching 50%, while it reaches just short of 80% in some private clinics in Brazil. Various studies have suggested that infants born through cesarean delivery are more prone to long-term health consequences compared to vaginally delivered babies. These consequences include diseases such as obesity and the occurrence of allergies. Research has also shown that the intestinal microbiota of cesarean infants differs from that of vaginally delivered infants. Vaginally delivered babies have more Lactobacillus, Prevotella, Sneathia, and Escherichia-Shigella while babies delivered by cesarean section have more Staphylococcus, Corynebacterium, Propionibacterium, Clostridia and Bacteroides. However, little research has been conducted to determine whether these microbial differences will persist throughout childhood. This project will explore how the mode of delivery affects infant intestinal microbiota, whether these differences persist through childhood, and how these compositional differences may correlate to diseases that these infants contract. Stool samples from two year old infants will be used to extract information regarding their intestinal microbiomes. 16S rRNA Illumina sequencing will be used to identify and quantify the bacteria. Analysis of the microbiota identified from sequencing will be performed using R statistical analysis.

Tjoa A, Xiong D, Lai V, Stewart Q, Li C (2016) Early Life Differences in the Microbial Composition of Cesarean Born Infants Poster presented at: 2016 UBC Multidisciplinary Undergraduate Research Conference (MURC)

Example 3

The development of government and community healthcare programs has the potential to significantly improve quality of life and care of people with dementia and their caregivers. Through these programs, people with dementia and their caregivers are increasingly able to benefit from accessible, prompt, and customizable healthcare services tailored to their needs and wants. These interventions can act as a gateway to autonomy, allowing people with dementia to be more involved in their own care. However not much research has been done on the direct impact of these such interventions. Therefore, to evaluate the benefits and harms of these interventions we conducted a program evaluation on First Link created by the Alzheimer's Society of B.C. First Link is a support network aiming to assist persons with dementia and their caregivers through all stages of the diagnosis and journey of dementia. A total of one hundred participants including persons with dementia, caregivers and physicians completed a survey on their experience with First Link. The survey questions aimed to evaluate topics on mental health, physical health, program relevance, support network effectiveness, service quality and accessibility. Preliminary findings from this both qualitative and quantitative study indicated that First Link was looked upon favorably and aided patients and caregivers in navigating the journey of dementia.

Sharma, S, Robillard, J (2017) A Program Evaluation of First Link Poster presented at: 2017 UBC Multidisciplinary Undergraduate Research Conference (MURC)

Sample Abstract from a Published Paper

The ability of insects to learn and navigate to specific locations in the environment has fascinated naturalists for decades. The impressive navigational abilities of ants, bees, wasps and other insects demonstrate that insects are capable of visual place learning 1– 4, but little is known about the underlying neural circuits that mediate these behaviours. Drosophila melanogaster (common fruit fly) is a powerful model organism for dissecting the neural circuitry underlying complex behaviours, from sensory perception to learning and memory. Drosophila can identify and remember visual features such as size, colour and contour orientation 5,6. However, the extent to which they use vision to recall specific locations remains unclear. Here we describe a visual place learning platform and demonstrate that Drosophila are capable of forming and retaining visual place memories to guide selective navigation. By targeted genetic silencing of small subsets of cells in the Drosophila brain, we show that neurons in the ellipsoid body, but not in the mushroom bodies, are necessary for visual place learning. Together, these studies reveal distinct neuroanatomical substrates for spatial versus non-spatial learning, and establish Drosophila as a powerful model for the study of spatial memories.

Ofstad, T., Zuker, C., & Reiser, M. (2011). Visual place learning in drosophila melanogaster. Nature, 474(7350), 204-U240. doi:10.1038/nature10131