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# **Nipissing University's Eighth Annual Undergraduate Research Conference**

March 6 - 7, 2015  
Nipissing University

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## **Letter from the Provost and Vice-President, Academic and Research**

Hello Students, Visitors, and Colleagues:

Welcome to our conference. We are glad you are here.

This conference is important evidence that teaching and research are inter-related and that they can and do occur at different levels. While some people associate research with graduate level education, Nipissing is rich with opportunities for students to be scholars as they move through their baccalaureate degrees.

Our conference is also a vehicle for students from other universities to visit us and share their scholarship. To those who have traveled to participate in the conference as well as family members and parents who are here to support our student-presenters, thank you for joining us.

To our keynote presenter, many thanks for taking time from your busy life to share your expertise. I am certain that each of us will gain new insights that will have meaning and application in our own pursuits.

Finally, I would like to express appreciation to those who have made the conference possible: the faculty who have worked as part of the Conference Advisory Committee for the conference, those faculty who volunteered to facilitate the panel presentations, other faculty members who have mentored student-presenters from Nipissing and other universities, and the staff from the Offices of the Associate Vice-President, Academic and Research Services. You make the difference for students.

Enjoy the conference.



Harley d'Entremont, PhD  
Provost and Vice-President, Academic and Research

## Message from the Associate Vice-President Academic, Committee Chair

One of the key questions that might be asked of any university professor is what is research and why does it matter? For those of us who have been engaged with research for many years the simple answer might be that research is about discovering new knowledge and potentially applying that knowledge to create something new or to understand the human condition. We might go on to say that as a term it covers all types of activities in which people engage to find answers to questions through a systematic and thoughtful approach. There are many different ways in which to conduct research ranging from scientific clinical trials through to narrative inquiry...in short there are both quantitative and qualitative approaches to answering questions. Quantitative studies aim to answer questions through the use of statistical analysis and numeric data while qualitative studies aim to establish the complexities of experience through "thick description. Some studies involve the use of both types of research approaches and can be labeled as mixed methods, a term that has come into general use over the past decade. Each approach has well-established traditions and practitioners within the university and elsewhere. Quite simply research matters in order to create new knowledge and explore the human condition. At Nipissing, our undergraduate students have the opportunity to engage with many types of research questions and methods depending on the discipline and its tradition.

This annual undergraduate research conference demonstrates the ways in which Nipissing students are taking up serious questions and exploring ways in which to begin to seek answers. The grounding that students have gained through these research opportunities prepares them well to engage with ideas and questions that are significant for them and for society. They are discovering new knowledge and applying it for the benefit of themselves and others. Nipissing is justifiably proud of the accomplishments of our students and celebrates them in this annual event.

I also want to take this opportunity to thank the members of the Undergraduate Research Conference Committee who have worked hard to organize the conference and plan for an event that allows our students to shine.

A handwritten signature in black ink, appearing to read "Sharon Rich", with a stylized, flowing script.

Sharon Rich

## Eighth Annual Undergraduate Research Conference Program at a Glance

### Friday March 6, 2015

| <b>Time</b>    | <b>Program</b>                                                       | <b>Location</b>        |
|----------------|----------------------------------------------------------------------|------------------------|
| 5:30 - 9:00 pm | <b>Registration</b>                                                  | Student Centre Hallway |
| 7:00 - 7:05 pm | <b>Welcome – Mike DeGagné,<br/>President of Nipissing University</b> | The Weaver – B200      |
| 7:05 - 7:15 pm | <b>Introduction of Keynote Speaker – Pavlina Radia</b>               | The Weaver – B200      |
| 7:15 - 7:50 pm | <b>Keynote Address – Elizabeth Presa</b>                             | The Weaver – B200      |
| 8:00 - 9:00 pm | <b>Poster Presentations</b>                                          | Student Centre Hallway |
| 8:00 - 9:30 pm | <b>Reception</b>                                                     | Book Store Hallway     |

### Saturday March 7, 2015

| <b>Time</b>      | <b>Program</b>                                                                        | <b>Location</b>   |
|------------------|---------------------------------------------------------------------------------------|-------------------|
| 8:30 - 3:00pm    | <b>Registration</b>                                                                   | NU Cafeteria A246 |
| 8:45 - 8:55 am   | <b>Opening Remarks – Harley d'Entremont<br/>Provost and VP, Academic and Research</b> | NU Cafeteria A246 |
| 9:00 - 10:30 am  | <b>Concurrent Sessions</b>                                                            |                   |
|                  | <b>#1 – Genocide and peacekeeping in comparative perspectives</b>                     | A224              |
|                  | <b>#2 – Biomechanics, exercise physiology, and motor control</b>                      | A226              |
| 10:30 - 10:45 am | <b>BREAK</b>                                                                          | NU Cafeteria A246 |
| 10:45 - 12:15 pm | <b>Concurrent Sessions</b>                                                            |                   |
|                  | <b>#3 – Health and physical activity psychology and promotion</b>                     | A224              |
|                  | <b>#4 – Health, Biology, Chemistry, and Psychology</b>                                | A226              |
| 12:15 - 1:15 pm  | <b>LUNCH</b>                                                                          | NU Cafeteria A246 |
| 1:15 - 2:45 pm   | <b>Concurrent Sessions</b>                                                            |                   |
|                  | <b>#5 – History and culture</b>                                                       | A224              |
|                  | <b>#6 – Environment in transition</b>                                                 | A226              |
| 2:45 - 3:00 pm   | <b>BREAK</b>                                                                          | NU Cafeteria A246 |
| 3:00 - 4:30 pm   | <b>Concurrent Sessions</b>                                                            |                   |
|                  | <b>#7 – Communication, Society and Motivation</b>                                     | A224              |
|                  | <b>#8 – Media and Culture</b>                                                         | A226              |
| 4:30 - 4:45 pm   | <b>Closing Remarks – Award Presentations</b>                                          | NU Cafeteria A246 |

Friday, March 6, 2015

|                |                                                                                     |                        |
|----------------|-------------------------------------------------------------------------------------|------------------------|
| 5:30 - 9:00 pm | Registration                                                                        | Student Centre Hallway |
| 7:00 - 7:05    | Introductory Remarks and Welcome<br>President of Nipissing University, Mike DeGagné | The Weaver (B200)      |
| 7:05 - 7:15    | Introduction of Keynote Speaker<br>Pavlina Radia                                    | The Weaver (B200)      |
| 7:15 - 7:50    | Keynote Address – Elizabeth Presa                                                   | The Weaver (B200)      |

***Following a Thread: Interdisciplinarity and Unexpected Registers of Truth***



website: [elizabethpresa.com](http://elizabethpresa.com)

Elizabeth Presa is a visual artist and Head of the interdisciplinary Centre for Ideas, Faculty of the VCA & MCM, the University of Melbourne. Elizabeth studied Sculpture at the VCA and the Phillip Institute, then completed an honours degree in Art History and Philosophy at the University of Melbourne, and an MA and PhD at Monash University. She has an ongoing interest in the interconnections between philosophy and art and how they intersect in interdisciplinary curriculum and research design. Elizabeth has been a visiting artist and scholar at many universities internationally, most recently at Minzu University, Beijing. Artist residencies include several residencies at the Cite International Des Arts, Paris; Nanyang Academy of Art, Singapore, and a Research Fellowship for a project on St Teresa of Avila at the Five College's Women's Research Centre, Mt Holyoke, Massachusetts. In 2013 she was artist-in-residence at Youkobo Art Space Tokyo to research the Ginza beehives; and at Pilchuck glass school in the USA.

Editions Galilee, Paris, presented an exhibition of her work made in response to *Chaque Fois Unique* by Jacques Derrida, and she has written on the interconnections between Rodin, Rilke and Blanchot in *After Blanchot: Literature, Criticism and Philosophy* (University of Delaware). Her curatorial work has included three iterations of 'Do It?' with Hans Ulrich Obrist (see interview in *Do It: The Compendium*, 2013). Currently she is working on a series of beehive projects titled 'Apian Utopias: Small Architecture for Bees' which involves projects and exhibitions in Tokyo, the USA, Beijing, New Zealand and Australia. Most recently she has written on art and object relations theory in *The Winnicott Tradition: Lines of Development*, (Karnac Books, London). Elizabeth Presa's work is featured in *Verwisch Die Spuren* (Diaphanes) by the philosopher Alexander Garcia Duttmann.

With best wishes,  
Elizabeth

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Tel: +61 3 90359343

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| 8:00 - 9:00  | Poster Presentations                                                                                                                                                                      | Student Centre Hallway |
| Moderators:  | Justin Carré, Kathryn Ewers, Ryan Graham, Steven Arnocky, Carole Richardson                                                                                                               |                        |
| Presenters:  |                                                                                                                                                                                           |                        |
| Kelsey Adams | <i>Not All that Glitters is Gold: The Refinement of Immunogold-Silver and Immunogold Staining Methods to Better Localize Dopamine Receptors in the Limbic Tissue of Rattus Norvegicus</i> |                        |

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| <b>Jordan Andrews</b>                                                                   | <i>Chronic Peripubertal WIN55212-2 Administration is Associated with Changes in Fear Conditioning, Amygladar Volume, and Synaptic Proteins -- <b>WITHDRAWN</b></i>                                             |
| <b>Bryan Bellefeuille</b>                                                               | <i>Indigenous Mathematics</i>                                                                                                                                                                                  |
| <b>Adam Burke</b>                                                                       | <i>Optical Breakdown Around Gold Nanoshells for Drug Delivery in Cancer Therapy</i>                                                                                                                            |
| <b>Patricia Cairns &amp; Meghan Reidy</b>                                               | <i>Nursing Practice as the Art of Living</i>                                                                                                                                                                   |
| <b>Jennifer Daub</b>                                                                    | <i>The Effects of Prolonged Lifting and Room Ambient Temperature on Spine Mechanics and Fatigue</i>                                                                                                            |
| <b>Nicole Hanson,</b><br>(Trent University)                                             | <i>Comparison of the Fluorescence of Friction Ridge Impressions on Porous Surfaces, developed with Two Different 1, 2 Indanedione-zinc chloride formulations, fluoresced by a Coherent TracER 8 Watt Laser</i> |
| <b>Amy Hatcher</b>                                                                      | <i>Assessing Visual Distraction Using a Modified Stroop Task</i>                                                                                                                                               |
| <b>Clarissa Huffman,</b><br>(McMaster University)<br><b>Sean Sears &amp; Josh Riley</b> | <i>Location-Allocation Modelling to Identify Urgent Care Locations in Hamilton, Ontario</i>                                                                                                                    |
| <b>Tricia Kafka</b>                                                                     | <i>Developing Culturally Competent Nursing Care in Northern Aboriginal Communities</i>                                                                                                                         |
| <b>Kimberly Knobel</b>                                                                  | <i>iLEAD Jamaica Expedition Great Huts</i>                                                                                                                                                                     |
| <b>Kevin Krista</b>                                                                     | <i>Client and Volunteer Satisfaction in an Adolescent Outpatient Substance Use Treatment Program</i>                                                                                                           |
| <b>Brandy Labine</b>                                                                    | <i>Effects of Testosterone on Emotion Recognition Accuracy in Men</i>                                                                                                                                          |
| <b>Ben Lovell</b>                                                                       | <i>Twelve Hour Golgi-Cox Staining of Planarians</i>                                                                                                                                                            |
| <b>Hillary Newman</b>                                                                   | <i>Police Use of Social Media in Ontario</i>                                                                                                                                                                   |
| <b>Brandon Robinson</b><br>(Carleton University)                                        | <i>Parameter Estimation of an Aeroelastic System Using Wind Tunnel Data</i>                                                                                                                                    |
| <b>Courtney Ryan</b>                                                                    | <i>The Effect of Gossip Violence on Interpersonal Relationships</i>                                                                                                                                            |
| <b>Manasa Seshan</b><br>(Carleton University).                                          | <i>The Interplay Between Social and Economic Freedom in India – A Case Study</i>                                                                                                                               |
| <b>Heather Sholer</b>                                                                   | <i>The Costly Effects of Horizontal Violence In Nursing</i>                                                                                                                                                    |
| <b>Sara Taylor</b>                                                                      | <i>The Effects of Testosterone on Moral Decision-Making</i>                                                                                                                                                    |
| <b>Tess Ulrich</b>                                                                      | <i>The Effects of Age and Temporal Distortion on the Central Auditory Integration Mechanism</i>                                                                                                                |
| <b>Victoria Winsor</b>                                                                  | <i>Categorizing Risk of Debris Flow in Southern Alberta</i>                                                                                                                                                    |

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| <b>8:00- 9:30 pm</b> | <b>Reception</b> | <b>Book Store Hallway</b> |
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**Saturday, March 7, 2015**

|                          |                     |                          |
|--------------------------|---------------------|--------------------------|
| <b>8:30 am - 3:00 pm</b> | <b>Registration</b> | <b>NU Cafeteria A246</b> |
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| <b>8:45 - 9:00</b> | <b>Opening Remarks – Harley d’Entremont<br/>Provost and VP, Academic &amp; Research</b> | <b>NU Cafeteria A246</b> |
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| <b>9:00 - 10:30</b> | <b>Concurrent Sessions</b> |  |
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|  | <b>#1 – Genocide and peacekeeping in comparative perspectives</b> | <b>A224</b> |
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**Facilitator:** Kristin Lucas

**Presenters:**

**Kyle Anderson** *Canadian Peacekeeping in the Medak Pocket*

**Victoria Bass-Parcher** *Faceless Neighbours: an undergraduate comment on the production of genocide and its applicability to the Holocaust*

**Chesley French** *Tuol Sleng Centre of Genocidal Crimes: Political Interest and Remembrance in Cambodia*

**Benjamin Olmstead** *Stopping a Genocidal Process*

**Neil Sivitar** *Peacekeeping 2.0? UN Force Intervention Brigades in the Democratic Republic of the Congo*

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|  | <b>#2 – Biomechanics, exercise physiology, and motor control</b> | <b>A226</b> |
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**Facilitator:** Lindsey McMaster

**Presenters:**

**Shane Petersen** *The effects of squatting footwear on three-dimensional lower limb and spine kinetics, kinematics, and muscle activity*

**Matthew Mavor** *Exploring The Relationship Between Local And Global Spine Stabilities During Repetitive Lifting Tasks*

**Karri Tuorilla** *The efficacy of a novel self-paced graded cycling test to measure maximal oxygen uptake*

**Daniel Southwell** *The Acute Effects of the Abdominal Drawing-In Maneuver on Spine Stability*

**Kevin Chan** *Exploring Differences in Visual Attention Between Athletes Non-athletes using the Attention Network Test -- **WITHDRAWN***

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| <b>10:30 - 10:45</b> | <b>Break</b> | <b>NU Cafeteria A246</b> |
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| <b>10:45 - 12:15 pm</b> | <b>Concurrent Sessions</b> |  |
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|  | <b>#3 – Health and physical activity psychology and promotion</b> | <b>A224</b> |
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**Facilitator:** Steven Arnocky

**Presenters:**

**Brogan Bailey** *Investigating the Organizational Culture of CrossFit*

**Zach Root** *Investigating Social Identity and Hormone Response in Combative Sports Athletes*

**Christian Paton** *HeatheSteps™ in the Workplace: Prescribing Exercise and Healthy Eating to Reduce the Risk of Diabetes*

**Devyn Richards** *The Effect of Physical Positioning and Changes in Perceived Effort During Group Exercise*

**Shane van Moorsel** *Exploring the Health Literacy of University Students and its Relationship to Health Behaviour*

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| <b>#4 – Health, Biology, Chemistry, and Psychology</b> | <b>A226</b> |
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**Facilitator:** David Borman

**Presenters:**

|                       |                                                                                                    |
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| <b>Scott Roscoe</b>   | <i>Hydrometallurgical Application of the Electro-Fenton Reaction</i>                               |
| <b>Graham Gautier</b> | <i>Neuroprotective Effects of Glutathione in Drosophila melanogaster</i>                           |
| <b>Bradley Jacobs</b> | <i>Effect of Oxidative Stress on Tau-induced phenotypes in Drosophila melanogaster</i>             |
| <b>Sara Taylor</b>    | <i>The effects of testosterone on moral decision-making</i>                                        |
| <b>Erica Ching</b>    | <i>The Complexity of Suicide: Review of Recent Neuroscientific Evidence -<br/><b>WITHDRAWN</b></i> |

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| <b>12:15 - 1:15</b> | <b>Lunch</b> | <b>NU Cafeteria A246</b> |
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| <b>1:15 - 2:45</b> | <b>Concurrent Sessions</b> |
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| <b>#5 – History and Culture</b> | <b>A224</b> |
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**Facilitator:** Katrina Srigley

**Presenters:**

|                         |                                                                                                                                                  |
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| <b>Melissa Harrison</b> | <i>"Schooling Conflict": The Vietnamese Education System During the Vietnam War and the Adaptations Introduced because of Conflict 1959-1969</i> |
| <b>Sara Karn</b>        | <i>What are "The brave men of The Green Beret" fighting for? : Popular Music in the United States during the Vietnam War, 1965-1970</i>          |
| <b>Stephen Kemp</b>     | <i>Darkness On The Edge of Town?: Vietnam and the G.I. Underground Press, 1967-1970</i>                                                          |
| <b>Nicolas McGuire</b>  | <i>Latin Islands? Imperialism, 'Romanization' and Roman Colonies of the Near East</i>                                                            |
| <b>Jaclyn Allen</b>     | <i>Ethnically Cleansed to Ethnic Melting Pot: Ethnic Chinese Vietnamese in Canada 1978-1985</i>                                                  |

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| <b>#6 – Environment in transition</b> | <b>A226</b> |
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**Facilitator:** Hilary Earl

**Presenters:**

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| <b>Christian Peart</b>  | <i>Total Phosphorus Analysis on the Veuve River: The Impact of Agriculture</i>                                                                                                   |
| <b>Meghan Robidoux</b>  | <i>Public art as a tool for environmental outreach: A survey of ecological art initiatives in Ontario's largest cities</i>                                                       |
| <b>Montana Warbrick</b> | <i>The effect of simulated moose browsing on the foliar monoterpene concentrations of balsam fir saplings in Gros Morne National Park, western Newfoundland</i>                  |
| <b>Allyson Kroeker</b>  | <i>The effect of simulated moose browsing on foliar concentrations of phenols and condensed tannins of balsam fir saplings in Gros Morne National Park, western Newfoundland</i> |
| <b>Christopher Carr</b> | <i>Drought biodiversity stability relationships in seedling assemblages of the Great Lakes St Lawrence region</i>                                                                |

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| <b>2:45 - 3:00</b> | <b>Break</b> | <b>NU Cafeteria A246</b> |
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| <b>3:00 - 4:30</b> | <b>Concurrent Sessions</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                          |
|                    | <b>#7 – Communication, Society and Motivation</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | <b>A224</b>              |
|                    | <b>Facilitator:</b> Hilary Earl<br><b>Presenters:</b><br><b>Braden Bradford</b> <i>The Good, The Bad and The Fishy: Garum and the Economy of Forum Iulii</i><br><b>Susan Chabot</b> <i>Teaching Real Writing Skills in the ESL Classroom</i><br><b>Candace Ghent</b> <i>Not "lyin' to live": Queer Liberation and Omar Little in HBO's The Wire</i><br><b>Eric Wilkinson</b> <i>Moral Motivation and Psychopathy</i><br><b>Autumn Varley</b> <i>Selling Ourselves: Indigenous Interpreters at Sainte-Marie among the Hurons</i> |                          |
|                    | <b>#8 – Media and Culture</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | <b>A226</b>              |
|                    | <b>Facilitator:</b> Steven Arnocky<br><b>Presenters:</b><br><b>Cameron Gordon</b> <i>A Gender Analysis of the Book of Judith</i><br><b>Mary White</b> <i>Tossing Small Stones: The Child Motif in Avison and Atwood</i><br><b>Tyler Hosken</b> <i>Expression of Self in Poetry: Exercise in Subjectivity or Futility?</i>                                                                                                                                                                                                       |                          |
| <b>5:15 - 5:45</b> | <b>Closing Remarks – Awards Presentation</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | <b>NU Cafeteria A246</b> |

## ABSTRACTS

**ADAMS, Kelsey**

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### ***Not All That Glitters Is Gold The Refinement of Immunogold-Silver and Immunogold Staining Methods to Better Localize Dopamine Receptors in the Limbic Tissue of Rattus norvegicus***

Immunogold staining (IGS) is an immunohistochemical technique that is used in transmission electron microscopy to locate neuropeptides and aquaporins within neural tissue (Sesack, Aoki, & Pickel, 1994). Appropriate antibodies can be coupled to electron-dense markers (such as colloidal gold), which enable the distribution of specific antigens to be localized and characterized in various tissues (Zhong et al., 2013). The use of gold particles to trace and label structures within tissue has given rise to recent advances in the field of cell biology, significantly improving properties such as sensitivity, higher labelling density, and increasing penetration into tissues (Hainfeld & Powell, 2000). Current IGS techniques have shown limited success due to variation in gold particle size, variation in the ability of the colloid to penetrate the tissue, and damage to the ultrastructure of the tissue during the staining procedure. Many of the difficulties that arise from embedding antibodies through immunogold labelling techniques are due to poor penetration and damage caused by large (5–20 nm) gold colloid particles; only the particles that pass through undamaged tissue can be properly targeted and imaged successfully (Hermann, Walther, & Muller, 1996; Johnson, 1981; Polak & Varndell, 1984). The objective of this research is to improve and refine the immunogold, immunogold-silver, and gold toning staining methodologies in order to obtain more precise and consistent labelling when targeting D4 dopamine receptors within the dorsal CA1 region of the hippocampus of the rat, *Rattus norvegicus*.

**ALLEN, Jaclyn**

### ***Ethnically Cleansed to Ethnic Melting Pot: Ethnic Chinese Vietnamese in Canada 1978-1985***

Canada is a country of immigrants and is historically recognized as a compassionate and welcoming site for refugees seeking resettlement. However, the Canadian experience for displaced peoples after the 1950s is underdeveloped in the discourse. This research paper will focus on the experiences of displaced ethnic Chinese Vietnamese who fled Vietnam in makeshift boats after the fall of Saigon in 1975, claimed refugee status, and were eventually resettled in Canada. This paper will explore motivations for fleeing and the processes of refugee camps and Canadian resettlement programs as they influenced the experiences of displaced peoples in Canada. I will be looking at newspaper articles from Canadian newspapers that have documented the flight of ethnic Chinese Vietnamese who left Vietnam by boat and have resettled in Canada. The articles are useful in showing Canadian citizens reception of the mass resettlement that took place from 1978 to 1985. By looking at the articles and stories with a culturally sensitive perspective I will illustrate what it is like to be displaced in Canada. Although Canada is perceived as a welcoming nation, issues of racism and discrimination affected Vietnamese refugees seeking asylum from 1978 to 1985. Using other government documents and books I will look at Canadian refugee and Immigrant policies, the stories and experiences of Vietnamese refugees, and the reception and integration of these refugees into Canada. This paper will add to the discourse on International refugee crisis' and the Canadian reaction to refugees.

**ANDERSON, Kyle**

### ***Canadian Peacekeeping in the Medak Pocket***

This paper will be focusing on the Second Battalion Princess Patricia's Canadian Light Infantry Battalion Group (2PPCLI) that was deployed in the Medak Pocket in 1993 as part of the United Nations peacekeeping force in the former Yugoslavia (UNPROFOR). The paper will ask what experiences and realities the Canadian peacekeepers faced while deployed in the Medak Pocket. On the early morning of September 9th, 1993, the Princess Patricia's battalion was attacked by Croatian soldiers while acting as a buffer between the Croatian and Serbian military forces. What was initially intended to be a United Nations peacekeeping mission quickly evolved into Canada's most intense battle since the Korean War. The battle that ensued between the Croatian military and Canadian peacekeepers provided the battalions young soldiers with an unexpected experience in conventional warfare and a firsthand look at the horrors

of ethnic cleansing. The methodology that will be employed for this project will include analyzing oral history sources as well as interviewing former soldiers of the Princess Patricia's who were deployed in the Medak Pocket. Canadian newspaper articles written about the military's deployment in the former Yugoslavia will also be looked at to develop an understanding of how the public perceived their military's peacekeeping missions. Canada's deployment in the Medak Pocket was unlike any peacekeeping mission in the country's history. This paper provides an opportunity to further understand the experiences and realities of the Canadian peacekeepers who unexpectedly found themselves in the middle of what is now remembered as "Canada's secret war."

**ANDREWS, Jordan**

***Chronic peripubertal WIN55212-2 administration is associated with changes in fear conditioning, amygdalar volume, and synaptic proteins***

Although cannabis and its associated derivatives are the predominant illicit substances consumed by young people, experimental research regarding long-term adverse neurological effects of its chronic use is limited for this age group. This research is particularly important since the age when marijuana is first used in North America is steadily decreasing with the younger aged users being the fastest growing population. It has recently been demonstrated that, in animal models, chronic cannabinoid administration during the peripubertal period is uniquely capable of causing neurological damage. In this way the youngest age groups may be at the highest risk for long-term detrimental effects of cannabis consumption. Research has also indicated that increased levels of anxiety may be associated with cannabis use. For this reason, the amygdala, which has long been implicated in anxiety and fear responses, was the focus of the neurological examination in the current study. This experiment involved chronic administration of the cannabinoid agonist WIN55212-2 mesylate to peripubertal male Wistar rats. Following chronic injections, experimental and control rats went through a standard auditory fear conditioning procedure to determine whether the drug treatment altered fear-learning. Neurological effects were examined by measuring co-localized synaptic protein density in the lateral and central amygdaloid nuclei (LA and CE respectively) using a confocal microscopic approach. Co-localizations were determined by applying primary antibodies to the synaptic proteins SV2 and PSD-95. Specific fluorophore-conjugated secondary antibodies were then applied and synapses were defined by the unique colour produced when both proteins co-localized. The behavioural results confirmed normal fear conditioning in both groups but indicated that the drug condition rats were more likely to show a fear response to the tone only (no shock). Preliminary synaptic results did not show any significant differences but there was a significant change in neural volume where the LA in the drug group was significantly larger than in the vehicle controls. Taken together, these results suggest that chronic cannabinoid use during adolescence results in a heightened level of emotional response and changes in amygdalar volume.

**BAILEY, Brogan**

***Investigating the Organizational Culture of CrossFit***

Schein (2010) proposed that any group's culture can be analyzed at three levels: artifacts, espoused beliefs and values, and basic assumptions. Given the exponential growth, popularity and success of CrossFit (Ritter, 2014), it is beneficial to explore and better understand its culture. The purpose of this study is to investigate the organizational culture of CrossFit. Focus groups were conducted with coaches, veteran members (over 1 year), new members (under 6 months), and owners of a CrossFit gym. The interviews examined Schein's three levels of organizational culture. This research hopes to help us better understand CrossFit's organizational culture and determine what cultural aspects influence exercisers to become and stay active.

**BASS-PARCHER, Victoria**

***Faceless Neighbours: an undergraduate comment on the production of genocide and its applicability to the Holocaust***

As this essay builds off the critical work of Stanley Milgram, it is important to understand the depth of the conclusions he presents. Each aspect of his experiments, from theory to procedural execution, offers a small glimpse into the surprising unknown of the human body and mind. The Obedience to Authority experiments guide generations of individuals to the emotional questions: What is genocide and how is it possible? Are people inherently violent? Or do humans use violence as a means of expressing biologically collectivist and racist tendencies? The preface that follows, along with the interpretive essay, hope to offer a unique blend of the authors personal subjections and academic literature from disciplines such as biology, social psychology, and criminology in providing potential answers to the questions above. Like a vast web, this essay correlates several major themes including: obedience to authority, the moral development dilemma, ethical decision making influences in organizations, the dissolution of responsibility, legitimate/illegitimate means, xenophobia, nationalism, the toxic triangle, situationism, functionalist deviance, and lastly the civilizing process. The following contents will be abstract – however – reaching the conclusion will hopefully convince readers of the author's undergraduate theory on the production of genocide and its applicability to the Holocaust. Included at the end of the essay are intentions for subsequent research.

**BELLEFEUILLE, Bryan**

***Indigenous Mathematics***

What resources can be gathered to create resources supporting and creating Anishinaabek Mathematics? Utilizing elders and academics from the Anishinaabek Nation would be a primary resource. There exists a few small journals on Ethnomathematics which can be explored and referenced.

**BRADFORD, Braden**

***The Good, The Bad and The Fishy: Garum and the Economy of Forum Iulii***

The intent of this paper is to investigate the importance of garum production and export to the economy of the Roman colony at Forum Iulii, modern day Fréjus. Being that Forum Iulii is rather scantily represented in ancient literature, it is initially quite difficult to discern any specific facts about this colony's economic and social life, short of what can be garnered by archaeological remains and other bits of material culture from the site. This paper, then, uses a comparative method, bringing from the acknowledged fact of garum production at this site, to explore the potential impact of this industry to the local economy. Using data from the well documented garum industry in the neighboring province of Lusitania, specifically the detailed analysis performed by Dr. Jonathan Edmondson on the major economic impact of this industry in Lusitania, this paper posits that a similar economic impact was likely in the colony of Forum Iulii. Further evidence is provided in the way of inscriptions found at the site, as well as references in the works of ancient writers.

**BURKE, Adam**

***Optical breakdown Around Gold Nanoshells for Drug Delivery in Cancer Therapy***

In the past decades intensive research and development have been devoted to bring basic science, engineering, biology, and medicine together to obtain innovative approaches and solutions to current health problems. Nanomedicine, the medical application of nanotechnology, is one of the most noteworthy examples of this convergence. Recently, metallic nanostructures (MNs) have shown a great potential for providing an effective method for transferring foreign genetic material into mammalian cells. Among these MNs the gold nanoshells (AuNSs) have unique characteristics for meeting all of the requirements in biomedical applications such as photothermal ablation therapy, photoacoustic tomography, and light-controlled drug release. In this research, we present a solid theoretical and fundamental understanding of cell optoporation technique, using femtosecond (fs) pulsed lasers to irradiate a region of interest. This fs laser-based technique is expected to be more efficient because the

laser pulse duration (10 to 300 fs) is shorter than the heat diffusion time of the materials. Therefore, virtually diminishing small thermal shock or collateral damage of the laser-irradiated cells. Enhanced by the presence of AuNS, the fs laser field will first heat the conduction electrons of the AuNSs; which will produce a transient and non-stationary thermal field with highly localized plasma in the water-base medium surrounding the AuNS. This plasma relaxes rapidly through electron-ion interaction, leading to a phase transformation and the generation of short-lived vapor nanobubble around the particle. The nucleated nanobubbles will disturb the cell membrane, leading to transfection.

**CAIRNS, Patricia & REIDY, Meghan**

### ***Nursing Practice as the Art of Living***

This research project will explore how professional nurses and student-nurses can employ a narrative inquiry approach to their lived experiences as a means to continually grow in the standards of nursing practice. This project asserts that narratively inquiring into experience is a way to transform lived experience into knowledge and insights for practice. The research question is "how does narratively inquiring into lived experience create insights that contribute to the practice of nursing?" The event this project focuses on is a mask-making activity done in a classroom setting by a group of student-nurses. I wish to present a series of aesthetic pieces, which are pictures of masks created by the students, as an illustration of the process of inquiry related to nursing practice. I will use a methodology/approach of narrative inquiry to explore how the mask-making activity helped nursing students in the Scholar Practitioner Program achieve insights related to the standards and practice of nursing, including culturally sensitive care and therapeutic relationships. I will collect qualitative research data by way of standardized written interviews and personal journal entries from participants of their learning related to this event. I will consult academic literature related to narrative inquiry as a methodology and research how it is used in nursing education. I wish to go beyond the mask-making event and demonstrate how narrative inquiry transforms the experience of everyday living, strengthens multiple ways of knowing and ultimately positively impacts how a nurse embodies their own practice in the field of nursing.

**CARR, Christopher**

### ***Drought biodiversity stability relationships in seedling assemblages of the Great Lakes St Lawrence region***

Recent models of regional precipitation trends have suggested there will be an increase in short-term severe droughts in the temperate forests of North America including the Great Lakes St Lawrence Region. Seedling responses to drought could be particularly important to consider from the perspective of forest regeneration, especially under changing climatic conditions. However, there have been few studies of community stability at this developmental stage. While seedling experiments involve a narrow spatial and temporal scale; they may also represent a more susceptible life stage to examine drought responses and can be easily manipulated in an experimental system where resistance and resilience can be calculated for assemblages of tree seedlings representative of important forest types in the Great Lakes – St Lawrence forest region. The objective of this greenhouse experimental study is to determine if species richness and/or composition affects the stability of seedling growth during drought events in species assemblages representative of the Great Lakes – St Lawrence region. This experiment examines species and community level seedling growth during and following induced droughts applied in a greenhouse environment. The species of interest included three canopy dominant tree species in the Great Lakes St Lawrence Region, trembling aspen (*Populus tremuloides*), white pine (*Pinus strobus*), and red oak (*Quercus rubra*). Pots were established in different combinations of these species representing different levels of species richness (1, 2, 3, and 4 species per pot), with all species combinations represented within each diversity level. These experimental combinations were replicated five times, with a constant density of 12 trees per pot, in 75 experimental cells requiring a population of 900 seedlings. Weekly height and measurements were taken. Following a six week period of establishment, plants were subjected to a one-week drought, followed by a two week recovery period. The experiment was therefore conducted over a nine week time period from May 1<sup>st</sup> – July 31<sup>st</sup> 2014. Soil moisture was determined during the drought for each experimental pot and a terminal biomass harvest was conducted to provide further growth information. Preliminary results suggest that species richness has a relationship to biomass production in all species except for trembling aspen. Soil moisture during the drought shows no correlation with species richness. Height growth increment graphs show that trembling aspen have

characteristics of high resistance and red oak have characteristics of high resiliency. This study will further explore the validity of the diversity stability hypothesis at critical stages of seedling development and may also provide further knowledge useful for conservation and management of the Great Lakes-St Lawrence dry forest communities in the future. Planting combinations of specific species may be more suitable than others to promote tolerance of drought conditions.

**CHABOT, Susan**

***Teaching Real Writing Skills in the ESL Classroom***

My research is focused on how to adapt and create curriculum that focuses on the cognitive processes involved in writing to advanced ESL/EAP students. This paper will examine some of the current thoughts about how people write and how it differs from all other language skills, and how to incorporate that research in the classroom. I plan on providing an overview of the current research as well as example lesson plans.

**CHAN, Kevin**

***Exploring Differences in Visual Attention Between Athletes and Non-athletes using the Attention Network Test***

The ability to allocate attention in the visual field is an important performance variable in many sports. The purpose of this study is to determine if athletes differ from non-athletes in alerting, orienting, and executive function of visual attention. Participants completed (156) of the modified Attention Network Test (ANT) developed by Weaver and colleagues (Weaver, Bedard, & McAuliffe, 2013). Data collection is ongoing. The results will be discussed in terms of visual attention and performance in sport.

**CHING, Erica**

***The Complexity of Suicide: Review of Recent Neuroscientific Evidence***

Many diverse models of depression have been proposed, ranging from social psychological to neurophysiological. The present work provides a general overview of some of the findings that have been made in recent neuroscientific literature, ultimately synthesizing a comprehensive view that emphasizes the importance of interconnected networks in the brain in clinical depression. In particular, this paper focuses on self-referential thought in profoundly depressed individuals and the interplay between complex or abstract reasoning and the perception of pain. Of particular importance appears to be the ventromedial prefrontal cortex (VMPFC), the dorsomedial prefrontal cortex (DMPFC), and the pre/subgenual anterior cingulate cortices (pgACC/sgACC), the amygdala, and the insula. It is suggested that, rather than being basic diagnoses that can be identified through confirming items on an inventory of symptoms, major depressive disorder may be viewed as a malfunction in an intricate system of networks in the brain.

**DAUB, Jennifer**

***The effects of prolonged lifting and room ambient temperature on spine mechanics and fatigue.***

Low back pain affects a large number of workers in industries that require prolonged repetitive lifting. Different environmental conditions (e.g. cold winter vs. hot summer) may contribute to the risk of developing low back pain during a lifting task. The purpose of my research was to measure the physiological changes during prolonged asymmetrical lifting at different ambient temperatures. Specifically, I measured the oxygen content of the erector spinae muscles, subjective effort rating, heart rate, and skin temperature during prolonged lifting tasks. Eleven healthy individuals (6 males, 5 females) completed three one-hour sessions of prolonged asymmetrical lifting under three randomized temperature conditions: 10°C, 21°C, and 32°C. The lifting object was a box weighted at 10% of each individual's maximum lifting strength. The box was lifted from a target located on the ground to a target adjusted to waist height. The protocol required the participant to twist to their left to put the box down. Pain was assessed using a visual analogue scale (VAS) and exertion was measured using a Borg CR10

scale. Oxygen content of the erector spinae muscles were measured using near-infrared spectroscopy (NIRS), heart rate was measured using an ECG-based heart rate monitor, and skin temperature was measured on the left and right lower back, anterior thigh (belly of the rectus femoris), lower posterior leg (belly of the gastrocnemius), upper right arm (belly of the tricep brachii), and the chest (pectoralis major). Our hypotheses were that localized muscle fatigue would increase and muscle oxidation levels would decrease in both the cold and hot climates, compared to the standard room temperature trial.

**FRENCH, Chesley**

***Tuol Sleng Centre of Genocidal Crimes: Political Interest and Remembrance in Cambodia***

My project will examine the transformation of S21, secret prison of the Khmer Rouge, to the Tuol Sleng Centre of Genocidal Crimes in Cambodia. Formerly known as S21, Tuol Sleng was an incarceration centre run by the secret police of the Khmer Rouge from 1975-1979. Only a handful of the almost twenty thousand prisoners or perceived “enemies of the State” survived life in S21. When Vietnamese forces invaded Cambodia in 1979, they stumbled upon the building of a former high school that housed dead and tortured victims. The thousands of photographs and detailed archives revealed and explained the atrocities that occurred within the walls of S21. Less than one year later, the Vietnamese opened the doors of Tuol Sleng, almost completely unchanged to the public to expose the horrific crimes of the Khmer Rouge regime. My paper will attempt to explain the purpose and the politics behind the opening of S21 as the Tuol Sleng Centre of Genocidal Crimes and what it is commemorating. By discussing the displays throughout and the many steps that went into opening the museum as a public space, I will attempt to describe whom exactly it is that the museum is commemorating and for whom it was opened. Beginning as a site of learning, S21 became a site of killing and Tuol Sleng became a site of mourning. My paper will discuss this transformation and the effect it has had on Cambodians trying to come to terms with their violent past.

**GAUTHIER, Graham**

***Neuroprotective Effects of Glutathione in Drosophila melanogaster***

Much of the current research on neurodegenerative diseases has begun to implicate oxidative stress as a major factor in the Free Radical Theory of Aging, which stipulates that aging is attributed to free radical damage over time. Reactive oxygen species are damaging molecules created by metabolic activity that cause damage to cellular components. Glutathione is an important antioxidant molecule in the detoxification of free radicals in the nervous system. Using the GAL4-UAS gene expression system in Drosophila, and RNA inhibition techniques, Glutathione synthesis can be inhibited in specific tissues to show the importance of Glutathione in the removal of reactive oxygen species. A series of appropriate bioassays can be conducted to reveal the in vivo roles of Glutathione in Drosophila.

**GHENT, Candace**

***Not "lyin' to live": Queer Liberation and Omar Little in HBO's The Wire***

In this paper, I argue that the character of Omar Little from the television show The Wire (Colesberry, Kostroff & Simon, 2002-2008) is a queer character for reasons that both include and go beyond identity politics. In particular, Omar represents the ways that race, class, sexuality and gender identities are often complex, intersectional and reconstitutive. By occupying multiple transgressive positions, Omar offers The Wire's audience the opportunity to view a character that is rarely seen in mainstream media; one is who is both queer in name and in their actions. Little's embodiment of both feminine and masculine traits disrupts the dominant gender discourse and in doing so offers an alternative representation of queerness, one that recognizes that masculinity and queer identity are not mutually exclusive and by extension challenges the hetero/homo binary, by reconstructing notions of queerness. In addition to this, as a stereotypical black, hyper-masculine man, Omar's involvement in same sex relationships challenges historical notions that posit queerness and blackness as mutually exclusive. Using Brenda Cossman's analysis of what it means to be an ideal sexual citizen in “Sexing Citizenship, Privatizing Sex” (2002), I also argue that Omar would be considered a bad sexual citizen in all categories other than class, as his “career” as a robber of drug dealers (though driven out of necessity due to a lack of governmental

support) makes him economically independent and therefore tips him into the category of ideal sexual citizen.

**GORDON, Cameron**

### ***A Gender Analysis of the Book of Judith***

In this paper, I will examine an artistic depiction of the climactic scene in the Book of Judith, one of the apocryphal texts of the Hebrew bible. Specifically, the paper will focus on both the subversive nature of gender and power as it is represented in the text, as well as how this subversion is represented in the painting Judith Beheading Holofernes, by the Italian Baroque painter Artemisia Gentileschi. My contention is that through gender role play, by which I mean that in murdering Holofernes Judith was assuming a traditionally masculine role, we cannot forget that she is at the same time an attractive woman and a widow. Judith represents a subversion of the normative patriarchal power structure in which she exists. In assuming a masculine role, she challenges the idea that gender performance and gender roles are determined by nature rather than culture. Perhaps because of her own traumatic experiences deriving from a gendered relationship with power - Gentileschi was raped by her tutor - her painting Judith beheading Holofernes is a particularly shocking and revealing depiction of this subversion of the relationship between gender, power and nature.

**HANSON, Nicole**

### **Comparison of the fluorescence of friction ridge impressions on porous surfaces, developed with two different 1,2-indanedione-zinc chloride formulations, fluoresced by a Coherent TracER 8 Watt Laser**

Fingerprint visualization methods, both physical and chemical, are used to examine the uniqueness of an individual's friction ridge impressions for identification purposes. Chemical developers have been introduced as a method of enhancing latent fingerprints on porous material. One of these developers is 1,2-indanedione-zinc chloride (IND-Zn) which is used to react with the amino acids in the fingerprint. In comparison to other chemical developers, IND-Zn has increased sensitivity while being more affordable, more soluble, and easier to use than competing developers. Different forensic laboratories, however, follow different formulations resulting in inconsistencies in the method of development of these latent fingerprints. The aim of the present study is to compare the fluorescence of fingerprint impressions, developed by these two different formulations of IND-Zn, through a qualitative and semi-quantitative analysis. A qualitative analysis and comparison will be conducted using a Caron Forensics Fingerprint Chamber, with added heat and humidity, and a Coherent TracER 8 Watt Laser. A comparative scale will be used to score the individual fingerprints to demonstrate if one of the two formulations provides a significantly larger visual enhancement of the impression details. A semi-quantitative analysis of the processed fingerprints' fluorescence will also be attempted using a Hitachi Fluorescence Spectrophotometer F-7000. The quantitative fluorescence analysis will provide numerical data that may be used to support the visual qualitative results. This research will be able to provide an evaluation of the effectiveness of the two formulations, which will help promote uniformity across forensic labs with regards to this chemical fingerprint visualization technique.

**HARRISON, Melissa**

### **“Schooling Conflict”: The Vietnamese Education System During the Vietnam War and the Adaptations Introduced because of Conflict 1959-1969**

The education system in Vietnam remained intact despite many years of colonial aggression and conflict. The institution continued to be a strong and important part of the culture and national identity of Vietnam during the Vietnam War. The South Vietnamese education system was heavily influenced and shaped by United States aid efforts from 1959 to 1969 that had been drawn to Vietnam by the conflict. These influences adapted the education system, which impacted the nature of Vietnamese society and in-turn the conflict. This paper will discuss how the education system changed because of United States intervention and how the changes benefited stabilized or disadvantaged Vietnamese society. I will be using primary source documents from this specific time period, such as curriculum documents, surveys of the education system, educational reports, project briefs and statistics to establish a binary relationship

between Vietnamese education and the Vietnam War. Themes such as decolonization, pedagogy and the impact of an institution on military conflict are significant in my study of these documents. The educational institution in Vietnam was not only an integral part of rural and urban society during heavy conflict but was directly affected and changed by the War.

**HATCHER, Amy**

### **Assessing Visual Distraction using a Modified Stroop Task**

According to the inhibitory deficit theory, older adults are more easily distracted by task irrelevant information than are younger adults (Hasher & Zacks, 1988; Biss et al., 2013). The purpose of this study is to further assess this theory and the degree to which inhibitory deficits may be influenced by the visual distance between the target and distractor information. In this experiment, participants will be required to complete a modified Stroop (1935) task. On each trial, two coloured rectangles (i.e., red, yellow, green, blue, or brown) will be presented in the centre of a computer monitor; a colour-congruent, colour-incongruent, or non-colour word, printed in black, will also be presented at one of five possible locations (i.e., 0 between the two bars, 4.5, 7.6 to the right or left of centre). Participants will be instructed to say the colour of the bars while ignoring the word. Using non-colour word trials as a baseline reaction time measure, we expect that both younger and older adults will show an interference effect (slower response times) when a colour word, incongruent to the colour of the rectangles, is presented. Reaction times for younger and older adults may be faster when a colour word, congruent to the colour of the rectangles, is presented (i.e., a facilitation effect). These effects should be more pronounced on trials where the word is presented closer to the coloured rectangles; however, according to inhibitory deficit theory, these effects should be more pronounced for older adults.

**HOSKEN, Tyler**

### **Expression of Self in Poetry: Exercise in Subjectivity or Futility?**

Poetry has endured thousands of years as a medium of artistic expression and criticism of the art has existed nearly as long, questioning the validity, influence, and authenticity of written verse. From Plato and Aristotle to Sydney and Gosson to Barthes and Eliot, critics have engaged with this rhetoric, the most recent of whom strive to separate the poet from his/her verse. But is the subject (poet) not apparent in the object (poem)? Focusing on concepts proposed by the schools of Phenomenology, Existentialism, and Psychoanalysis, namely Heidegger, Merleau-Ponty, Foucault, and Lacan, I explore the relationship between subjectivity and poetry, specifically the expression of the former in the latter. This exploration occurs in three parts. Firstly, I form two parties of philosophers and literary critics: one which argues in favour of poetry as expressive of subjectivity, and another which suggests the expression of self-hood via poetry as futile. Secondly, I examine the implications of these arguments and develop possible criteria for expressing oneself authentically through poetry. Lastly, I subject three examples of my own poetry to these criteria and judge whether or not they appear to authentically represent my own subjectivity. In this talk, I will focus on the conclusions of my study by referencing the application of the criteria devised on two poems penned by others (Shakespeare's "Sonnet 18" and Nowlan's "An Exchange of Gifts"), and that of one of my own."

**HUFFMAN, Clarissa, RILEY, Josh, & SEARS, Sean**

### **Location-Allocation Modelling to Identify Urgent Care Locations in Hamilton, Ontario**

Hospitals in the City of Hamilton are home to some of the longest wait times in Ontario. Access to urgent care services is severely limited within the City as there are only two facilities designated as 'urgent care'. Urgent care centres are critical as they are the designated locations for patients with non life-threatening ailments that cannot wait for a family doctor appointment (i.e. stitches, simple broken bones, fever). With this lack of access, users are clogging the emergency rooms of Hamilton's three full-service hospitals (St. Joseph's, General, and Juravinski) causing wait times of up to 28 hours. The two urgent care facilities in the City are unable to adequately handle the demand requested of them and new facilities are required to alleviate wait times and to more equitably provide urgent care services to the users in the City. Using a Location-Allocation model, the addition of three new Urgent Care centres in the City will decrease wait

times for uses as well as making emergency medical services more equitably accessible, while simultaneously reducing the strain on the local hospitals and emergency rooms.

**JACOBS, Bradley**

### **Effect of Oxidative Stress on Tau-induced phenotypes in *Drosophila melanogaster***

Both oxidative stress and hyperphosphorylation of Tau protein have been proposed to be contributing factors of the etiology of Alzheimer disease. Oxidative stress, referring to the accumulation of Reactive oxidative species can lead to neurodegeneration as well as compromised neuronal cellular function. In addition Tau protein is a cytosolic, neuronal-specific, microtubule-associated protein that is localized to axons, that is sensitive to hyperphosphorylation and aggregation. As a result, this will lead to the formation of neurofibrillary tangles, typically seen in Alzheimer disease. The purpose of this study, is to determine whether or not both mechanisms are indeed linked. Through the use of standard genetic crosses, *Drosophila* lines will be created expressing both Tau-protein in the eye with the use of GMR-GAL4/UAS system and in the motor neurons of the model organism *Drosophila melanogaster* through the elav-GAL4/ UAS system. So far, three line have been created expressing GMR-GAL4, elav-GAL4 and Tau protein in a SOD-null genetic background. Once the lines have been further grown, crosses will be conducted to get the necessary lines. Once the lines are achieved the “rough eye” phenotype will be observed as well as locomotor functions and longevity. It is hypothesized that under oxidative stress, that the expression of the rough eye phenotype will be enhanced resulting in a definitively reduced eye. Furthermore, it is hypothesized that both locomotor functions and longevity will be reduced as well. If the rough eye is enhanced by chronic oxidative stress in a SOD-null background, it implies that chronic oxidative stress increases the effect of Tau-induced Alzheimer disease in humans. This would then lead to further research in the etiology Alzheimer disease leading to a possible cure or further pharmaceuticals for treatment.

**KAFKA, Tricia**

### **Developing Culturally Competent Nursing Care in Northern Aboriginal Communities**

Despite a recent focus on improving Aboriginal health, there is increasing evidence that shows the Aboriginal population continues to have the poorest health and the shortest life expectancies of all Canadians. Health disparities among Aboriginal Canadians include disproportionately higher rates of diabetes and suicide, shorter life expectancies, and lack of equitable access to health care services. The presentation will discuss the importance of cultural competence in Aboriginal care, the role of Registered Nurses as primary care providers in northern Aboriginal communities, and Campinha-Bacote’s conceptual framework is presented to explain how nurses can progress through the five interdependent stages of cultural awareness, cultural knowledge, cultural skill, cultural encounter, and cultural desire in order to develop and implement culturally competent nursing care. The author will highlight the results of a review of a number of current, peer reviewed scholarly nursing resources in which the research supports that culturally competent nurses improve Aboriginal health outcomes and quality of care in northern Aboriginal communities. Culturally competent care benefits individuals, providers, and the health care system by improving patient outcomes, increasing quality of care, improving patient compliance, and decreasing health disparities. In addition, providing culturally competent care increases job satisfaction and can help with recruitment and retention for health care providers in rural and remote communities. It is important for nurses, especially as primary care providers with increased autonomy and responsibility in northern communities, to recognize the need to develop and implement culturally competent nursing care in order to provide high quality client-centred care.

**KARN, Sara**

**What are “The brave men of The Green Beret” fighting for?: Popular Music in the United States during the Vietnam War, 1965-1970**

My research focuses on the American public's reception of popular music with prominent war content and messages, in the context of the Vietnam War between 1965 and 1970. Through a case study of the songs “The Ballad of the Green Berets” by Staff Sergeant Barry Sadler and “I-Feel-Like-I’m-Fixin’-To-Die Rag” by Country Joe McDonald, I conduct a comparative analysis between pro-war music and protest music. Through this comparison, I expose the contrasting views that divided the nation during the Vietnam War era. Song lyrics and newspaper articles make up the majority of the primary source base. They are examined through a cultural lens with a particular focus on discourse analysis. The language used in the songs and newspaper articles, as well as the reception of the music by Americans is of particular interest. This research demonstrates that popular music has much to contribute to our understanding of the changing views of Americans towards the Vietnam War in the 1960s.

**KEMP, Stephen**

**Darkness On The Edge of Town?: Vietnam and the G.I. Underground Press, 1967-1970**

With the advent of the Vietnam War, American society was thrust into a ubiquitous era of turbulence from which it would not emerge the same. The enduring and divisive nature of the conflict fostered an environment where civil and soldier resistance and movement, was rife. Ideas and soldiers are the stuff of war. Ideas merely have to exist. Soldiers however, have to persist. Manifestations of that persistence vary. A subsidiary of a wide G.I. Movement, the G.I. Underground Press was active during the course of the Vietnam War, and played a prevalent role in the G.I. experience. The G.I. Underground Press provided soldiers with an outlet, through which forms of persistence could be exercised. My paper seeks to examine the G.I. Underground Press from 1967-1970. What constituted a G.I. Newspaper? What content was in the articles? What did those articles mean to the G.I.'s who wrote and read them? What can be gleaned in the way of continuity and change, in regards to the articles and composition of the newspapers over the 1967-1970 epoch? Through this, greater themes pertaining to G.I. Movement and subsequently the Vietnam War can be espoused. The methodology employed in my paper appropriates aspects of both social and political history. Nothing occurs in a vacuum, and approaching the topic through a lens that incorporates elements of both ensures proper and fair demarcation of the G.I. Underground Press, and consequently the G.I. Movement, within broader society. Approaching the newspapers and articles themselves will be an amalgam of two methodologies, being empirical and conceptual. Accounting for the critical mass of archival evidence and inventorying it is one task. Deconstructing and applying conceptual narrative to them, is another.

**KNOBEL, Kimberly**

**iLEAD Jamaica Expedition Great Huts**

A poster presentation outlining the background of Great Huts Eco Tourism Resort in Port Antoni, Jamaica. A group of students from Nipissing University travelled to Jamaica to participate in management consulting. Great Huts had outlined problems with the operations of the business, it was found that there is an issue with a lack of performance appraisal system. Recommendations and implementation tools were created and presented to the management team of Great Huts to help solve this problem.

**KRISTA, Kevin**

**Client and Volunteer Satisfaction in an Adolescent Outpatient Substance Use Treatment Program**

Diverting adolescents into substance use treatment programs instead of probation or incarceration occurs as an attempt to decrease future criminal behaviour and avoid a criminal record. However, research on the effectiveness of this method for reducing recidivism and addressing substance issues is under studied, especially among Canadian youth. When assessing substance use treatment programs, it is important to determine how effectively the program meets the client needs. Clients whose needs are not met will likely be dissatisfied with the services, and be at a greater risk to drop out (Kelly, O’Grady, Brown,

Mitchell & Schwartz, 2010). As well as clients, satisfaction of program staff may also impact treatment outcomes. This study aimed to investigate the association between client and staff satisfaction and program outcomes. Adolescent clients between the ages of 12-18, and volunteer staff members completed anonymous satisfaction questionnaires as part of a program evaluation study. Participants attended or volunteered at a Northern Ontario social service agency. Participants self-reported their level of satisfaction using adaptations of the Youth Services Survey for Youths (California Department of Mental Health, 2012), and the Volunteer Satisfaction Index (Galindo-Kuhn & Guzley, 2001). Measures were administered at baseline and every 3 months while attending the program. The following three research questions were answered through this study: (1) Is client satisfaction related to positive program outcomes? (2) Is staff satisfaction related to positive program outcomes? (3) Are staff and client satisfaction related to one another? Results provide important program information that will assist to identify client and volunteer needs and areas of satisfaction.

**KROEKER, Allyson**

### **The effect of simulated moose browsing on foliar concentrations of phenols and condensed tannins of balsam fir saplings in Gros Morne National Park, western Newfoundland**

On the island of Newfoundland, population densities of moose are the greatest in the world. This non-native herbivore was introduced only a century ago to the island where a lack of competitors and predators allowed rapid population growth. In parks such as Gros Morne National Park (GMNP) where hunting, the main population regulator of moose, has not been allowed, moose population density has exceeded the carrying capacity. This has resulted in the failure of balsam fir forests to regenerate due to the rapidly decreasing abundance of this once-dominant tree species in the forest understorey. Of the forested area that has been disturbed in recent decades, only 25% of this landscape is undergoing successful forest renewal; the remainder has been classified as having impaired or failed forest regeneration. In GMNP, moose use balsam fir almost exclusively as winter forage. This is surprising as palatability and digestibility of conifers is often limited due to high concentrations of secondary metabolites such as phenols and condensed tannins. This causes us to question why moose are targeting balsam fir. Similarly, why is balsam fir regenerating in some sites and not others? Do site conditions that affect the production of secondary metabolites play a role? Previous studies show that the production of secondary metabolites in balsam fir can be affected by site conditions and induced by herbivory. The mandate of GMNP to maintain the natural state of the park for the enjoyment of future generations is now severely challenged and parks managers need to address such questions to adequately manage the conservation and restoration of the native forest. The objective of my study was to examine the effect of different types of simulated browsing on foliar levels of total phenols and condensed tannins of balsam fir saplings within Gros Morne National Park. It was hypothesized that simulated browsing of balsam fir saplings would induce the production of these compound groups above background levels. Studies were conducted at five locations in Gros Morne National Park, Newfoundland, having abundant and healthy balsam fir saplings in the regeneration layer. In May 2013, four simulated browsing treatments (no browsing, apical browsing, lateral browsing, and apical + lateral browsing). In the fall of 2014, current-year needles were sampled from cut branches (approximately 100 g fresh weight per sapling), put in labelled sealable plastic bags and placed in an insulated cooler which contained several frozen ice packs. These samples were immediately returned to the lab and frozen at -4 0C. Frozen samples were prepared for analysis of total phenols and condensed tannins. The effect of browsing treatment and site conditions on foliar levels of these defense chemicals in balsam fir saplings will be discussed.

**LABINE, Brandy**

### **Effects of Testosterone on Emotion Recognition Accuracy in Men**

Research has shown facial expressions of emotions to be universally recognizable across cultures (Ekman & Friesen, 1971). Nevertheless, there is variation in emotion recognition accuracy. Some of this variance can be accounted for by sex differences whereby women outperform men when identifying subtle expressions of emotions (Hoffman et al., 2010). In addition, testosterone has been shown to impair emotion recognition accuracy when administered to women (Van Honk & Schutter, 2007). Other work indicates diurnal variation in emotion recognition accuracy whereby men performed better in the afternoon compared to the morning (Sykes & Tottenham, 2014). This finding is of interest in light of the

fact that testosterone concentrations are highest in the morning relative to the afternoon. The current experiment seeks to investigate whether testosterone plays a causal role in impairing emotion recognition accuracy. In a double-blind counterbalanced, crossover design, testosterone (150 mg Androgel®) or placebo, was administered to 30 healthy young men between the ages of 18 and 30. Participants provided blood samples over a 2-hour period to track changes in testosterone in response to the drug challenge. Next, their performance on the Facial Emotion Recognition Task (FERT) was assessed to determine accuracy scores across a range of emotional intensities (20%, 40%, 60%, 80% & 100% expressions of anger, fear, happiness, and sadness). It is predicted that testosterone will impair emotion recognition accuracy, most notably at subtle intensity levels. The results of this study and the implications of our findings will be discussed.

**LOVELL, Ben**

### **Twelve Hour Golgi-Cox Staining of Planarians**

Despite being simple organisms, the delicate tissue of small freshwater flatworms can be difficult to stain with consistency, especially their nervous tissue. We have developed a method of Golgi staining planarians (*Dugesia tigrina*) based on a combination of methods used in mammalian brains. Due to the delicate nature of planarian tissue, traditional and "rapid" Golgi-Cox methods, which take days or weeks, tend to damage the tissue making it nearly impossible to get good, consistent results. Our method is simple, consistent and rapid; successful staining can be done in less than 16 hours. Whole planaria are fixed in 6% glutaraldehyde under a glass coverslip for 10 minutes, soaked in a traditional Golgi-Cox solution (5% Potassium dichromate, 5% Mercuric chloride, and 5% Potassium chromate) for 12 hours at 37C (as per reference 1), then rinsed in PBS twice and finally soaked for 10 minutes in 5% ammonium hydroxide before being transferred to glass slides and cover-slipped.

**MAVOR, Matthew**

### **Exploring The Relationship Between Local And Global Spine Stabilities During Repetitive Lifting Tasks.**

Lifting is a major risk factor for low back injury, because moving a load provides a disturbance to the lifter's balance and equilibrium. The goal of the present study was to examine the relationship between local and global spine stabilities during global perturbations introduced at the foot-floor interface. Twelve healthy males completed a freestyle lifting protocol on a perturbation treadmill, under three randomized load conditions: 0, 4, and 8kg. Participants performed 40 lifts under each load condition; no perturbations occurred during the first 20 lifts. During the last 20 lift cycles (in blocks of 5) the treadmill randomly perturbed the participants. Local dynamic spine stability was quantified for the first 20 lifts. In addition, we analyzed the distance traveled from the unperturbed lifting pattern, the time to max distance, the relaxation distance, and the rate of return toward the normal lifting pattern following each perturbation. An increase in load lifted lead to significantly increased local spine stability ( $p = 0.046$ ). Post-hoc results revealed that the 8kg condition was significantly more stable than the 0kg condition ( $p = 0.011$ ). Higher load also lead to decreased distance traveled away from the unperturbed trajectory ( $p = 0.023$ ). Post-hoc results revealed that both the 4 and 8kg conditions were more stable than the 0kg condition ( $p = 0.007$  and  $0.018$ ). Results agree with previous research that increasing the load lifted improves local spine stability during non-perturbed lifting. Here we have shown that these changes also translate into a greater ability to resist external global perturbations, which may reduce injury risk and should be explored in the future.

**MCGUIRE, Nicholas**

### **Latin Islands? Imperialism, 'Romanization' and Roman Colonies of the Near East**

The Romans, both during the Republic and Empire periods, built many colonies throughout Italy and their possessions throughout Europe and the Mediterranean world. Many colonies played a role in the security and defense of Roman interests, both in the West and the East. This paper will examine how Roman colonization was articulated in the Near East, a region of the Empire with entrenched Hellenized and indigenous populations and urban centers. This research paper will look at the how Roman colonies were used as a mean of pacification and control over this culturally diverse region of the Empire. It will answer

the question, beyond their immediate military function, how did colonies contribute to the protection of Roman interests in the Near East? There are certain boundaries within this paper, geographically and chronologically speaking. Chronologically, this study will focus on the principate era, from Augustus to the fall of Dura Europos in c.256-257 CE, when Sassanid King Shapur I conquered the city. Geographically, we are speaking of what would be today's Syria, southern Turkey, Lebanon, Israel, Palestine and Jordan; also known as the Levant. This research paper will primarily look at three Roman colonies. These colonies include Pisidian Antioch (Colonia Caesarea), Beriut (Colonia Iulia Augusta Felix Berytus) and Jerusalem (Aelia Capitolina). The analysis of each colony and its role in pacification of the regions, in terms of both military security and other means, will form individual case studies within the essay. In these case-studies, there first will be a general analysis of the colonies themselves. This will be followed by a more in depth discussion on how these individual colonies acted as vehicles for pacification and Romanization of local populations and territories. Here, there will also be a discussion of any notable signs of resistance towards colonization effort. Lastly, there will be an attempt to gauge the longevity of Latin/Roman culture in the Near East and the fate of the colonies within this study.

**NEWMAN, Hillary**

### **Police Use of Social Media in Ontario**

This research examined the police use of social media in Ontario. An historical overview of social media was completed and illustrated the importance of social media in today's society. Social media has changed the way people are accessing information, communicating and sharing opinions. An examination of both business and government use of social media was undertaken. Both businesses and government agencies use social media as a tool to promote business goals, gather public feedback and mitigate public outcry via crisis control strategies when needed. Additional benefits of maintaining an active social media presence specific to police agencies were explored. Police services may improve transparency, encourage community engagement and facilitate the dissemination of time sensitive information through the use of social media. Data was collected from the social media websites Twitter and Facebook. A descriptive analysis on the use of social media among the 51 regional and municipal police services in Ontario was undertaken. Preliminary analysis suggested that police agencies with more uniformed officers and a larger population to service were more likely to have Twitter and Facebook accounts. Additionally, their activity levels on these websites were higher in terms of number of tweets (Twitter), number of followers (Twitter) and number of likes (Facebook). A content analysis will be conducted in order to assess the frequency of certain topics being posted or tweeted about in order to further analyze police use of social media.

**OLMSTEAD, Benjamin**

### **Stopping a Genocidal Process**

Why is it important for us to know about the Holocaust? After all, it did happen 69 years ago. Most people would agree that the purpose of teaching people about the Holocaust is to prevent something so tragic from ever happening again. To achieve this aim however, there are certain ways to teach the Holocaust that should be avoided. In this essay, I will discuss why the events of the Holocaust should continue to be taught, and stress the importance of teaching it in a way that will cause students to think critically about the subject. I address topics such as why the Holocaust should be taught instead of other genocides that have happened. I also specify what aspects of the Holocaust should be taught. In this paper, the controversial idea of how Hitler was able to gain control of so many people is discussed. However, in contrast to that idea, I also draw attention to those who were able to resist Nazi influence. Throughout the paper, I use the novel *The Book Thief* written by Markus Zusak to shape my argument, as this is the 2014-2015 Common Book at Nipissing University. This source, alongside more academic sources, allows this paper to be informative, but also something that a younger generation can relate to. There are many lessons that can be learned from the Holocaust, and they will still be applicable many years from now. The main goal of this paper is to argue the importance of teaching students about the Holocaust in the future.

**ORTIZ, Triana**

### **Effects of Testosterone on Cognitive Empathy in Men**

Cognitive empathy refers to a person's ability to infer the feelings, motives and intentions of others (van Honk et. al, 2011). Previous research shows that women outperform men on tasks evaluating empathic abilities (Baron-Cohen, & Wheelwright, 2001). The steroid hormone testosterone is one potential factor that may underlie the sex difference in empathic abilities. Indeed, women administered testosterone (versus placebo) demonstrated decreased empathic mimicry (Hermans et al., 2006) and performed relatively poorly on the Reading the Eyes in the Mind Task, a measure of cognitive empathy. In addition, other work indicates that natural circulating levels of testosterone are negatively correlated with empathic abilities in both men and women (Harris et al., 1996; Ronay & Carney, 2013). Here, we used a double blind, placebo-controlled, crossover design in which men (n = 30, ages 18-35 years) were administered a single dose of testosterone (150 Androgel®) or placebo. Blood samples were drawn during the first 2 hours of the study to track changes in testosterone. Approximately 3 hours after drug administration (time of anticipated peak testosterone response to drug; Eisenegger et al., 2013), participants performed the Reading the Eyes in the Mind task. We predict that testosterone will decrease empathic accuracy on the Reading the Eyes in the Mind Task. In addition we predict that those with the greatest increase in testosterone after Androgel® administration will demonstrate the largest decrease in empathic accuracy. Results of this experiment and their implications will be discussed.

**PATON, Christian**

### **HealtheSteps™ in the Workplace: Prescribing Exercise and Healthy Eating to Reduce the Risk of Diabetes**

The objective of this research is to implement the HealtheSteps™ (HeS) program in a workplace setting. Participants at risk for or living with Type 2 diabetes were recruited to take part in HeS, an evidence-based, community-focused, lifestyle prescription program that provides personalized lifestyle prescriptions/plans for exercise, physical activity (PA) and healthy eating. Following screening and enrollment, participants completed baseline measures including resting heart rate, height and weight, cardiovascular fitness, current level of PA, sedentary time, and fruit and vegetable, water, and healthy breakfast consumption. At each program session, participants are then provided with personalized exercise, PA (step counts), and healthy eating prescriptions by a HeS coach who also works with them to establish goals to achieve their prescriptions and overcome potential barriers. Participants are asked to return every two months (for eight months) for re-assessment and further lifestyle coaching. Data collection is ongoing and program implementation will be discussed.

**PEART, Christian**

### **Total Phosphorus Analysis on the Veuve River: The Impact of Agriculture**

Phosphorus is a primary nutrient in soils and crops, but it can also be a pollutant in water bodies when delivered in excess quantities. Increased phosphorus delivery to water bodies is responsible for an increased abundance in algae growth, which causes the water to degrade by reducing the oxygen in the water body and killing the organisms in it. Lake Nipissing, a large lake located in central Ontario is used heavily for recreation and tourism, local potable water supply, and a commercial fishery. The lake has had outbreaks of algae, which could be the result of agriculture. The Veuve River is a principal inflow to Lake Nipissing. The lower approximate 30 km of the river flows primarily through an agricultural development centre around the community of Verner in West Nipissing. In agriculture, fertilizer is used to produce a better yield in crops, however, the key component in fertilizer is phosphorus. The primary objective of the study will be to examine whether the agricultural region around the town of Verner is enhancing total phosphorus delivery to the Veuve River during a period of increased but variable autumn flows. The Veuve River will be sampled at three locations and analyzed for total phosphorus: first, upstream of the major agricultural region, second, in Verner, and thirdly, downstream of Verner. The water samples were collected on a bi-weekly basis and brought back to the lab where they were digested with ammonium persulfate. The sample's phosphorus content was determined spectrophotometrically using the stannous chloride colourimetric method.

**PETERSEN, Shane**

**The effects of squatting footwear on three-dimensional lower limb and spine kinetics, kinematics, and muscle activity.**

The primary purpose of this study was to quantify 3-D lower limb and spine kinetics during the barbell back squat. Twenty-four experienced weightlifters (12M, 12F) performed one trial of three repetitions of barbell back squats at 80% of his or her 1RM per footwear condition (barefoot, shod, weightlifting shoe), in a randomized order. The results showed that there was a significant main effect of shoe type on the knee extension moment ( $p=0.001$ ), where post-hoc testing revealed that the running and weightlifting shoes produced significantly larger moments than the barefoot condition. There was also a main effect of shoe type on internal knee rotation moments ( $p=0.002$ ), where the weightlifting shoe produced significantly larger moments than both other conditions. Conversely, for the hip there was also a main effect of shoe type on the extension moment ( $p=0.004$ ), where the barefoot condition produced significantly larger moments than either the shod or weightlifting shoe condition. Lastly, there was also a significant main effect of shoe type on both internal ( $p=0.005$ ) and external ( $p=0.003$ ) hip rotation moments, where the barefoot condition produced greater external rotation and less internal rotation than either shoe type condition. There were no differences in ankle moments, lumbar spine moments, or lumbosacral compression or shear forces between conditions. This study indicates that altering footwear conditions while performing the barbell back squat can redistribute the internal biomechanical loading patterns amongst the lower extremity joints and perhaps alter the musculoskeletal adaptations elicited.

**RICHARDS, Devyn**

**The Effect of Physical Positioning and Changes in Perceived Effort During Group Exercise**

Empirical evidence suggests physical position in a group setting (e.g., classroom) influences performance (Akimoto et al., 2000), however it is unknown if positioning in a group exercise setting also influences performance. The purpose of this study is to examine the influence of changes in physical positioning on perceived effort and overall performance during exercise. Participants who regularly attend group cycling classes were recruited for a five week intervention. During the first two weeks of the protocol (baseline), participants chose and remained in their preferred position in the exercise class. Participants were then randomly selected to have their position manipulated for two weeks. During the final week, participants again chose their preferred position. Baseline measures include exercise compulsion and exercise history. Heart rate and distance cycled were assessed during exercise classes and perceived effort and instructor satisfaction were evaluated after classes. Data collection is ongoing and preliminary results will be discussed.

**ROBIDOUX, Meghan**

**Public art as a tool for environmental outreach: A survey of ecological art initiatives in Ontario's largest cities**

This research seeks to explore the use of public art in Canada as a tool to increase public awareness of the environment in which they reside and the challenges it faces. Ontario's largest cities, including Toronto, Ottawa, Mississauga, Brampton, and Hamilton, will be examined. Data will be collected by conducting semi-structured interviews with artists, public art specialists, and urban planners in these cities. Existing planning policy to support the creation and installation of public art will be reviewed as well. While some research on this subject matter has been conducted in other regions of the world, little attention has been paid to its potential in Canada. Based on what is currently understood in the existing literature, there is significant reason to speculate that public art could be a successful tool for increasing public awareness of local environmental issues in Ontario's largest cities. By establishing planning policy to support the creation and installation of public art for this purpose, both the environmental and cultural pillars of sustainability may be supported. This research sets out to identify current public art initiatives in Toronto, Ottawa, Mississauga, Brampton, and Hamilton that aim to educate the general public on an environmental problem. By doing so, the benefits resulting from such initiatives could be brought to light and further examined. In addition, areas in which further development would be beneficial may be identified. This research also has the potential to support the development of future public art planning policy in Ontario.

**ROBINSON, Brandon**

### **Parameter Estimation of an Aeroelastic System Using Wind Tunnel Data**

The purpose of this experiment was to create a numerical model for a single degree of freedom aeroelastic oscillator. Specifically, the model seeks to describe the normalized aerodynamic moment acting on an airfoil immersed in a moving fluid, which is experiencing the effects of both linear and nonlinear aerodynamics. Wind tunnel data from experiments conducted at the Royal Military College of Canada provided measurements of the pitching motion of an airfoil in an environment that simulated the aforementioned conditions. The raw pitch data was processed such that it provided a set of values for the normalized moment. A statistical least-squares regression method was used to establish a polynomial function that best modelled the experimental data. This entails fitting coefficients to a function whose independent variables are the pitch angle and its first derivative with respect to time, the pitch velocity. This work was performed as a predecessor to the current effort to expand the model to reflect a coupled two degree of freedom system which experiences motion in both the pitch and plunge directions. In such a system there is interaction between the two degrees of freedom. New functions for both the normalized aerodynamic moment and lift force would be obtained. A least-squares method would be applied to fit coefficients to two separate functions, whose independent variables would be pitch, pitch velocity and plunge velocity. The final goal in creating the model of the forces acting on the airfoil is to explore energy harvesting applications with nonlinear aerodynamics.

**ROOT, Zach**

### **Investigating Social Identity and Hormone Response in Combative Sports Athletes**

Testosterone concentrations change rapidly in the context of athletic competition (Archer, 2006). Also, simply watching one's team compete has similar effects on testosterone concentrations (Carré & Putnam, 2010). Despite these findings, there remains widespread variation in testosterone responses to competitive athletes. One potential factor that may underlie such variability is an athlete's social identity - identity formed through membership on a team. The purpose of this study is to examine the relationship between social identity and testosterone responses in male combative sports athletes' watching video footage of their teammate competing (win/loss). Athletes will complete a measure of social identity and provide saliva samples before and after watching video footage of teammates competing. Multiple regression analysis will be used to examine the relationships between social identity, testosterone, and competition outcome. This research hopes to strengthen knowledge about athlete-teammate relationships and the impact it may have on testosterone and competitive performance.

**ROSCOE, Scott**

### **Hydrometallurgical Application of the Electro-Fenton Reaction**

Fenton chemistry has typically been used for the oxidation of industrial waste water. This study investigated the novel application of the electro-Fenton reaction as a hydrometallurgical technique for the extraction of copper and iron from chalcopyrite. Reagents used in the electro-Fenton reaction include iron(III) and hydrogen peroxide in a solution with a pH of 2-3. Ground chalcopyrite was mixed into this solution and a mild electric current was applied. With 72 hours reaction time 89.8% of the copper and 93.7% of the iron was extracted.

**RYAN, Courtney**

### **The Effect of Gossip Valence on Interpersonal Relationships**

Interpersonal gossip is widespread and may help or hinder the development of positive interpersonal relationships. This study represents one of the first gossip manipulation studies based on online get-to-know-you conversations. We hypothesized that gossip will alter participants' evaluations of their partner and the conversational dynamic depending upon the valence of the gossip. Method. Forty females completed four get-to-know-you online conversations using text-only, chat sessions. Participants were informed that their online conversations would be with students at another University when, in fact, participants were communicating with the same research confederate adopting four different online

personas following similar conversation feedback scripts. During the second conversation, the participant chatted with the gossip providing either positive or negative information about another person (target). During the fourth conversation, “by coincidence,” the participant chatted with the gossip target. Participants were randomly assigned to either a positive or negative gossip condition. After each conversation, participants rated the quality of the conversation and the liking, knowledge, and trustworthiness of their partner. Repeated measures analyses of variance are underway to test for gossip effects. Results. Preliminary results showed that partner ratings differed as a function of gossip valence and conveyer or receiver of the gossip. Discussion. Gossip is frequently viewed as “bad” behaviour. Our results found increased liking of gossipers even when conveying negative gossip about another person. The online study is not only ecological, it provides greater experimental control over the message than is possible in face-to-face studies. Future studies should test the limits of online gossip effects.

**SESHAN**, Manasa

### **The Interplay Between Social and Economic Freedom in India – A Case Study**

India's rapid growth is substantially observed in the urban areas and is yet to fully percolate to the rural masses that form the majority. It is well argued in the literature that real growth of India is predicated on the improvement in non-economic factors such as providing more freedom to the socially backward. Typically, a good majority of the socially backward population in India are also economically backward – and they are also illiterate. The subject matter of the research focuses on the complex interplay between illiteracy social backwardness and economic backwardness in India. In a focus group of a selected economically backward, illiterate and socially backward persons at GMR Varalakshmi Foundation Bangalore, India, it was observed that merely creating an opportunity for achieving economic growth, such as training and placement in gainful employment, is not self-sustaining. The real solution to achieving economic growth of the majority may lie in addressing the problem of these individuals not being free from the age-old social structures that have deprived them of much agency. This paper discusses this case study and the observations in detail.

**SHOLER**, Heather

### **The costly effects of horizontal violence in nursing**

Registered Nurses (RNs) have a professional responsibility to their profession, their patients, and the community to eradicate horizontal violence (HV) from their practice. This presentation will highlight the findings of a literature review which supports the development of professional communication, collegial respect, and effective leadership as key strategies for addressing horizontal violence. HV is a demoralizing act that has far reaching effects, not only to the nursing profession, but to the healthcare system. When professional communication is poor, relationships erode and care is compromised. Implications of HV can be far reaching and include increased length of stay for patients and possible litigation. It can damage a nurse's confidence, increase sick time and decrease job performance possibly leading to anxiety, depression, and/or leaving the profession altogether. With effective leadership, offenders can be brought to justice and victims will be provided with the assistance that they need. Through collegial respect, RNs can resolve differences in a constructive manner, which in turn improves nurse's job satisfaction and promotes nursing retention. To address HV, RNs must be supportive, respectful, and nurturing to novice nurses and students; this is an ethical obligation. RNs strive for excellence in nursing practice to ensure safe, research and best practice driven quality care for patients and their families. Being proactive against HV and having a zero tolerance approach will promote continued excellence in care.

**SIVITER**, Neil

### **Peacekeeping 2.0? UN Force Intervention Brigades in the Democratic Republic of the Congo**

The Democratic Republic of the Congo represents one of the longest standing peacekeeping missions of the United Nations, and also, the largest peacekeeping mission undertaken by the organization. Inspired by rebel group M23's capture of Goma (a DRC provincial capital) in the face of 19,000 UN peacekeepers whom offered little if any resistance, the FIB created a new 3,000 strong UN force with the authorization to act alongside the Congolese government in order to neutralize armed groups by force. The FIB has

since lead to the surrender and dismantling of M23 as an organization, and also, has led to the renewal and expansion of the FIB within the DRC. Though the DRC continues to face a wide array of security issues, the FIB presents an innovative method in conflict resolution, an initiative importantly backed through a unanimous vote of the frequently divided UN Security Council. Though designed as not providing the precedent for changing the nature of peacekeeping, the use of the FIB model has considerable potential, and thusly, regardless of non-precedent commitments, cannot be unseen as a plausible model of innovatively creating peace. In this paper I will examine the use of FIB's in perspectives of legality in accordance with international law, the results derived by the 2013 FIB mandate, and lastly, if this model is a viable option for other regions embroiled in similar conflicts.

**SOUTHWELL, Daniel**

### **The Acute Effects of the Abdominal Drawing-In Maneuver on Spine Stability**

The purpose of this study was to: (i) examine whether performing the frequently prescribed abdominal drawing-in maneuver (ADIM) during dynamic movements could increase transversus abdominis (TrA) activation, and (ii) assess whether changes in TrA activation could alter dynamic spine control and stability. Thirteen healthy participants (7M, 6F) performed a repetitive unloaded spine flexion task twice, receiving instruction between sets on how to perform the ADIM in standing. Surface and indwelling electromyography and 3-D kinematic data were collected and processed and the local dynamic stability of spine movements was calculated using published methods. Results were then compared between the baseline and trained trials using repeated-measures analysis of variance. Following ADIM training, there were significantly greater ( $p < 0.05$ ) levels of activation in all tested abdominal muscles (including TrA), yet no increase in activation of any of the back muscles tested. There was also no significant change in the local dynamic stability of spine movements following training ( $p = 0.855$ ). The results indicate that in a healthy population, increasing activation of the TrA does not increase dynamic spinal control or stability. One possible explanation for this is that participants' non-familiarity with activating their TrA during movements may have caused them to focus internally on the activation of the muscle rather than externally on the task at hand, potentially impairing neuromuscular coordination and movement outcomes. To assess such a motor learning effect, we are currently analyzing data from a second day of testing after participants performed a home exercise program of TrA activation and stabilization exercises for one week.

**TAYLOR, Sara**

### **The effects of testosterone on moral decision-making**

Moll, Oliveira-Souza, and Zahn (2008) define morality as the customs and values that are understood by a cultural group to guide their social conduct. Moral decision-making is typically assessed using variants of the 'trolley dilemma' in which participants must decide whether it is acceptable to sacrifice the life of one person in order to save many people. Numerous psychological and contextual factors contribute to variability in moral decision-making (Carney & Mason, 2010). More recently, investigators have begun to explore biological factors that may contribute to variation in moral decision-making. For instance, one study reported that men and women with elevated testosterone concentrations were more likely to make utilitarian moral decisions (i.e., sacrifice one person in order to save many; Carney & Mason, 2010). Moreover, a single dose of testosterone to young women increases utilitarian moral decision making – especially among women who have been exposed to elevated levels of prenatal testosterone (Montoya et al., 2012). The extent to which testosterone plays a causal role in moral decision-making in men is currently not known. Here, we used a double blind, placebo-controlled, crossover design ( $n = 30$ ) to examine whether a single administration of testosterone increases utilitarian model decision-making. We differentiate between incidental and instrumental moral dilemmas. Incidental decisions are those that have the subject as a mere facilitator in the dilemma, whereas the instrumental decisions are those in which the subject must actively influence the situation. We predict that testosterone will increase the number of utilitarian decisions made in the moral dilemmas, and primarily the largest difference will be in the increased number of instrumental decisions. Results of the study will be presented and the implications of the findings discussed.

**TUORILA, Karri**

### **The efficacy of a novel self-paced graded cycling test to measure maximal oxygen uptake**

In a traditional graded exercise test (GXT), where a person exercises against a fixed, progressively increasing resistance to fatigue, a linear relationship exists between exercise intensity and oxygen consumption. A maximal rate of oxygen consumption ( $VO_{2max}$ ) will occur when a further increase in intensity fails to elicit a further increase in oxygen consumption. Recently, researchers have reported that novel GXT, in which the person is free to adjust pace and effort, resulted in the attainment of a higher maximal rate of oxygen consumption compared to a traditional GXT. The purpose of this research project was to compare a novel GXT to a traditional graded exercise test. A group of healthy female varsity athletes from the Nipissing University Hockey and Nordic Skiing teams participated in six exercise tests on separate occasions at the Nipissing University Exercise Physiology laboratory, performing either a traditional GXT or a novel GXT. In each visit, participants were instrumented with non-invasive skin electrodes, near-infrared optodes, and a mouth piece for expired gas analysis to measure heart rate, muscle activity, muscle oxygen consumption and lung oxygen consumption. It is our hypothesis that a novel GXT will yield greater maximal oxygen consumption than a traditional GXT. Data analysis is currently in progress.

**ULRICH, Tess**

### **The Effects of Age and Temporal Distortion on the Central Auditory Integration Mechanism**

Murphy, Daneman, and Schneider (2006) found that older adults have difficulty remembering conversations when listening to two talkers separated in space. Follow-up research demonstrated that normal hearing adults, but not hearing impaired older adults, can effectively combine filtered speech presented in separate ears into a coherent speech stream. Thus, there appears to be a central auditory mechanism responsible for combining signals from the different ears and age related hearing loss may compromise this mechanism. The purpose of this study is to further examine differences in the central auditory mechanism and temporal auditory integration between younger and older adults. Participants will be asked to listen to high and low context sentences which have been band pass filtered to leave a narrow, one-octave band of spectral information at 500 Hz and at 4000 Hz. On each trial, participants will listen to a sentence and are asked to repeat the last word of the sentence. On some trials, participants will hear only the 500 Hz or the 4000 Hz pass band; on other trials, the 500 Hz band will be presented in one ear and the 4000 Hz band will be presented in the other ear. In addition, a time delay (either 4, 32, or 100 ms) has been introduced between the onsets of each version of the sentence. Although we expect all groups to have greater difficulty at identifying words as the temporal delay between sentence onset increases, this difficulty should be most pronounced for hearing impaired older adults.

**VAN MOORSEL, Shane**

### **Exploring the Health Literacy of University Students and its Relationship to Health Behaviour**

**Background:** The current research on health literacy suggests it is an important predictor of health. Little is known about the health literacy of university students, a population who may be more likely to engage in unhealthy and risky lifestyle behaviours. Given many of today's chronic diseases are lifestyle related and are being diagnosed earlier in life, understanding the ability of young adults to access, understand, evaluate and communicate health information is important for disease prevention. **Purpose:** The primary purpose of this study is to evaluate the health literacy levels of university students. The secondary purpose is to explore the association between levels of health literacy and health behaviours. **Methods:** Male and female university students were recruited through email, Facebook pages and the student research pool to complete a survey. Health literacy was assessed using the s-TOFHLA and the Newest Vital Sign. Previously validated and reliable surveys were used to assess health behaviours such as physical activity, diet, smoking history, alcohol consumption and tanning bed use. Standard sociodemographic items (e.g. age, sex, ethnicity, program and year of study) and self-rated health were also collected. **Results:** Data collection is ongoing and preliminary results will be discussed. **Application:** The results of this study could be used to develop campus-wide health promotion initiatives to improve health literacy and health behaviours of the student population.

**VARLEY**, Autumn

### **Selling Ourselves: Indigenous Interpreters at Sainte-Marie among the Hurons**

Historic sites have proven to be important places for the general public to become acquainted with historical events and the impact they have had in shaping our present day circumstances. These "living" historic sites are staffed by historical interpreters, usually dressed in costume, that give an "authentic" feel to the site. At one such museum, Sainte-Marie among the Hurons, Indigenous interpreters dress in costume and represent the seventeenth century Wendat people, inhabitants of southern Georgian Bay. Although some historians have written about the importance of interpreters at historic sites such as Fort Henry, very little has been said about the Indigenous experience of portraying other Indigenous people. There is a significant need for Indigenous testimony with regard to historic representations of themselves, particularly at Sainte-Marie among the Hurons where the Indigenous representation of the Wendat is a large draw for visitors. These positions can be difficult for Indigenous employees who are often called on to represent and explain Indigenous people in general, past and present, and who must negotiate the expectations of visitors who see them through sexualized and racialized discourses. How can these positions be reworked in order to assist in building and creating public memory while remaining authentic? This study will attempt to fill this gap in scholarly literature by utilizing Indigenous interpreters' testimonies to understand their experiences of representing Wendat people and how they understand these positions as developing over time. It will also contribute to scholarly discussions around the importance of public memory, the creating of native imagery, and heritage versus authenticity in public museums.

**WARBRICK**, Montana

### **The effect of simulated moose browsing on the foliar monoterpene concentrations of balsam fir saplings in Gros Morne National Park, western Newfoundland**

Moose (*Alces alces* L.) were introduced in 1904 to the island of Newfoundland, where their populations have since dramatically increased. Aerial surveys show elevated densities as high as 16 moose per km<sup>2</sup> in some locations. In winter, this demanding ungulate population aggressively forages on balsam fir (*Abies balsamea* L. P. Mill.) saplings due to the abundance of this tree species and a lack of suitable alternative forage at this time of year. The consistent attack on young trees has impacted the integrity of the balsam fir ecosystems that have historically dominated the landscape. Increasingly, the absence of balsam fir in the forest understory results in the failure of large forested areas to naturally regenerate following the regular disturbances that typically drive forest renewal. In Newfoundland, rapid growth of moose populations has been facilitated by a lack of both competitors and predators. Additionally, in parks such as Gros Morne National Park (GMNP), where hunting has traditionally not been allowed, the rate of moose population growth has been especially rapid and densities particularly high. Balsam fir is not normally a preferred browse species due to high levels of secondary metabolites; chemical defense compounds which act as toxins and reduce digestibility in herbivores. The synthesis of these chemicals is costly for the plant; however, studies have documented the ability of conifer species to induce levels above background concentrations in the presence of both simulated and actual herbivory. In GMNP, resource managers are challenged in their mandate to conserve the land in its natural state for future generations. The few areas of the park where successful balsam fir regeneration is observed are of particular interest to help better understand conditions required for survival and how this species might be conserved. Differences in the ability of balsam fir to produce high levels of secondary metabolites under various site conditions could explain successful regeneration on some sites. This study aims to relate browsing levels to the production of metabolites produced by balsam fir, in particular the monoterpenes, which are known to be produced by this species to defend against insect herbivores. A simulated browsing study was employed in five different areas of GMNP where successful balsam fir regeneration is occurring. Four simulated browsing treatments included: 1) no browsing, 2) lateral browsing, 3) apical browsing, and 4) apical plus lateral browsing of young healthy fir saplings at each location. In September 2013 and 2014, fresh foliage from each tree was collected, immediately frozen and transported in a frozen state back to Nipissing University for analysis of monoterpene content. The effect of browsing treatment, as well as site and sapling characteristics on monoterpene levels in balsam fir will be discussed. This study will provide Parks Canada with needed information to conserve and restore balsam fir forests and make a contribution to our limited understanding on the secondary metabolite chemistry of this valuable species.

**WHITE, Mary**

### **Tossing Small Stones: The Child Motif in Avison and Atwood**

Literature commemorates and makes notable the anomalies of human nature by questioning the categorization of people and their behaviours. This project investigates how the image of the playing child is used in contemporary Canadian poetry to dialogue with multidisciplinary theories about the nature of childhood and its relation to the whole human life. The project takes place in three parts, beginning with a critical analysis of poetic works by two free verse poets, Margaret Avison and Margaret Atwood. Selections from Avison's *The Dumbfounding* and Atwood's *The Circle Game* are explored for their commentary on the human condition through child figures. The second portion of the project is a series of creative pieces in the free verse genre that work alongside and in response to the works of Avison and Atwood. Finally, an analysis of the creative work situates it in the literary theory and poetic patterns discussed in the original critical analysis. In the poetry examined, the image of child's play has the power to destabilize 20th Century understandings of normative child development by psychologists such as Freud and Erikson and also revolutionizes the simple archetypes defined by literary critics such as Jung and Frye. These poems lead to a more flexible understanding of the individual child by their use of specific examples of child's play as being part of human nature in a lifelong capacity. The appreciation for individuals' acquisition of childlikeness is applicable in working with the literary child as well as real children and adults.

**WILKINSON, Eric**

### **Moral Motivation and Psychopathy**

Moral motivation concerns the relationship between moral judgements and the actions those judgements prescribe. The motivational power of moral judgements distinguishes them from other types of judgements, which only have normative implications insofar as they are coupled with moral judgements that possess motivational force. The basis of this motivational force is a point of contention, however. Do moral beliefs themselves provide moral motivation, or does motivation come from conative states? The latter view is the sentimentalist view. Under this view a moral belief is insufficient to motivate an individual to act. To be motivated requires possession of a desire that supports the given action. The opposite view, which takes moral beliefs to be inherently motivating, is the rationalist view. Proponents of sentimentalism raise the challenge of amorality against rationalists. An amoralist makes moral judgements and forms moral beliefs but remains unmotivated by those beliefs, contradicting the notion that moral beliefs are inherently motivating. Psychopaths are argued to be individuals who form moral judgements yet are unmotivated by said judgements. The traditional rationalist response denies that psychopaths make real moral judgements and argues they understand morality in an "inverted commas" sense, thus being incapable of understanding morality. There is reason to believe psychopaths are capable of making moral judgements however, and that they are motivated by said judgements. Although the conditions of psychopathy lead to the formation of unusual moral beliefs, it is not necessary to claim psychopaths cannot form legitimate moral judgements to preserve a rationalist perspective on moral motivation.

**WINSOR, Victoria**

### **Categorizing Risk of Debris Flows in Southern Alberta**

In the southern Rockies, debris flows are one of the principle mass movement hazards. A debris flow is a mass movement of organic and inorganic material which acquires its momentum from the saturation of these materials (VanDine 1985). Debris flows cause loss of life and damage to infrastructure, so assessing and identifying high risk areas is a priority in this region. Debris flows can occur with very little warning—often the conditions are already in place and need only a small trigger such as a storm event or snowmelt for the debris flow to occur (Iverson 1997). Therefore, understanding the risk associated with underlying causes is key in determining where planning and remedial action is required. The two causes that have been examined in this study were basin size and slope gradient. Basin size creates the space, or lack of it for a trigger-such as a storm event-to spread out over. This means that water and sediment will build up more quickly in a smaller basin, but spread out over the space in a larger basin. The role of slope gradient requires higher gradient to be a significant factor, as a higher slope gradient leads to less stability of sediment on a slope. This region provides steep slope gradients and small basins in

abundance, allowing the high risk of debris flows throughout. In order to categorize risk in the Bow River Valley, each watershed in this area has been extracted and examined. Using a relative scale, a risk index has been created so that each watershed can be placed at a relative level of risk identifying how hazardous it is.

## NOTES