



# Inquiry@Queen's

10<sup>th</sup>  
Annual  
Undergraduate  
Research Conference

## Program

March 10 & 11, 2016  
Queen's Learning Commons  
Stauffer Library

***[queensu.ca/iatq](http://queensu.ca/iatq)***

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March 2016

We are now in our 10th year of celebrating the discoveries of a new generation of scholars at the Annual Inquiry@Queen's Undergraduate Research Conference. We have two full days to share, discuss, think, learn and feel excited about the research of our undergraduate students. The work they will present comes from many avenues - course work, theses, design projects and summer research opportunities; some came simply from an interest in a topic, and a desire to know more and think more.

Inquiry@Queen's is more than a conference; it is an approach to learning where the teacher and the learner reside in the same person. It is a natural extension of a university that prides itself on the quality of undergraduate education and its scholarship and research.

We invite you to attend the oral presentations, to view the posters and talk to the presenters, to ask questions, to attend the keynote session and the special events, but most certainly to enjoy the breadth of undergraduate student scholarship. Drop by for an hour, an afternoon, a day or two days!

To all those who have supported us in many ways over the last ten years...we thank you! Congratulations to all participants!

On behalf of Inquiry@Queen's,

Vicki Remenda  
Associate Dean (Acting) (Teaching and Learning)  
Faculty of Arts & Science

Jackie Druery  
Head, Humanities & Social Sciences  
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Student Training Coordinator,  
Information Services,  
University Library

## **Conference Agenda**

**Thursday, March 10, 2016**

- 9:00-9:30 Welcome: Speaker's Corner, Stauffer Library – Opening Remarks & Coffee
- 9:30 Session I: Flora, Fauna & Merryweather I (Speaker's Corner, Stauffer Library)
- 9:30 Session II: Ethical Societies I (Seminar Room, Stauffer Library)
- 11:30 Session III: Experiential Learning (Speaker's Corner, Stauffer Library)
- 1:00 Session IV: Letters, Diaries & Stories (Speaker's Corner, Stauffer Library)
- 1:00 Session V: Ethical Societies II (Seminar Room, Stauffer Library)
- 3:30 Session VI: Innovation & Invention: Changing Outcomes I (Speaker's Corner, Stauffer Library)
- 3:00 Session VII: Flora, Fauna & Merryweather II (Seminar Room, Stauffer Library)

**Friday, March 11, 2016**

- 9:00 Session VIII: Welcome & Keynote (Speaker's Corner, Stauffer Library)
- 10:40 Session IX: Turning Things on their Head (Speaker's Corner, Stauffer Library)
- 10:30 Session X: Innovation & Invention: Changing Outcomes II (Seminar Room, Stauffer Library)
- 11:45-1:00 Session XI: Lunch with Poster Presenters (Seminar Room, Stauffer Library)  
All Welcome!
- 1:00 Session XII: Colonization & Appropriation (Union Gallery, Stauffer Library)
- 1:00 Session XIII: Visualization/Visual Representation (Speaker's Corner, Stauffer Library)

## **ORAL PRESENTATIONS**

### **Session I: Flora, Fauna & Merryweather**

**Speaker's Corner, Queen's Learning Commons, Stauffer Library**

**Thursday, March 10, 9:30-11:10**

**Moderator: Dr. Neal Scott, Geography and Planning**

#### **An Exploration of Opportunities and Barriers for Implementing Urban Agriculture at Queen's University in Kingston, Ontario**

**Presenter: Rebecca Minielly, Geography and Planning**

**Faculty Supporter: Dr. Betsy Donald**

Previous qualitative studies of urban agriculture (UA) in neighbourhood contexts suggest that UA projects do have the potential to contribute positively to community sustainability. Queen's University in Kingston, Ontario expresses a commitment to sustainability. This qualitative study is concerned with the capacity of UA at a university campus scale to fulfill Queen's commitment to sustainability. Is UA possible here and will it contribute significantly to sustainability? A thorough literature review of urban agriculture, community sustainability, and institutional land use planning is a major component of the research. A review of food and sustainability policy in Kingston and at Queen's is another component. As the study progresses it will also include 7-10 semi structured interviews. Each participant will be involved with either campus UA at another university, the management of Queen's land use, or Queen's food and sustainability projects. Due to the length of the Queen's ethics approval procedure, primary research for this study has not yet been conducted. The Queen's Sustainability website suggests that Queen's campus has one community garden and it "consistently has a waiting list". Meanwhile, the Physical Plant Services website states that Queen's has over 140 acres of green space. There is plenty of opportunity for UA at Queen's. This thesis draws on literature review to explain the potential opportunities and barriers for UA in general, while policy analysis will expose opportunities and barriers for UA at Queen's in particular. Going forward, informational interviews will also be necessary to understand opportunities and barriers for UA at Queen's.

#### **From Palm Trees to Shorelines- Coir Fiber as a Coastal Reinforcement**

**Presenter: Alexander Rey, Civil Engineering**

**Faculty Supporter: Dr. Ryan Mulligan**

In conjunction with changing climate patterns and increasing urban development, there is a significant need for materials that can be used to protect shorelines from erosion. While existing hard materials such as concrete and steel succeed in preventing erosion, they are costly to implement, and impact the aesthetic of the beach. Coir Fiber is an organic material produced as a byproduct of coconut production that has recently been investigated for use as a shoreline reinforcement. Currently, coir fiber is disposed of as a waste material; however, when processed into a bio-log format it has significant structural properties. In 2014, a series of tests on this material was completed at the Queen's University Coastal Engineering Laboratory, resulting in a laser-profiler dataset demonstrating the change in beach profile under active wave action with various coir fiber reinforcements applied. Significant post-processing was applied to the data, including alignment using 2-dimensional cross correlation and a Gaussian filter. This processing allowed for the laser profiles to be effectively aligned, and the coir fiber impact to be qualified

as slightly effective at minimizing erosion. The tested conditions were then simulated in XBeach, a numerical modeling program, to validate results against the experimental conditions.

### **Effects of Perennial Biomass Grasses on Soil Quality in Bath, Ontario**

Presenter: Kaitlin Stansfield, Environmental Science

Faculty Supporter: Neal Scott

Perennial grasses have the potential to be important bioenergy crops, as they are fast-growing and produce large amounts of biomass. They can also help improve soil quality (e.g. soil organic matter) when established on marginal lands or degraded soils. In collaboration with Lafarge Cement, who are interested in replacing coal with biomass energy, I tested the impact of perennial grasses on soil quality in Bath, ON. I studied soil samples collected in 2015 from three replicates of perennial grass species and one replicate of native vegetation (as a control) established by Queen's faculty and students in 2009. The three perennial grass species used were switchgrass (*Panicum virgatum*), little bluestem (*Schizachyrium scoparium*), and big bluestem (*Andropogon gerardii*). Soil carbon and nitrogen content were higher under switchgrass in the 0-10 cm layer, but otherwise did not differ by species. Both carbon and nitrogen levels declined with depth. Isotopic data suggests a replacement of original soil carbon with carbon derived from the C<sub>4</sub> grasses. These data will be compared with data collected prior to grass establishment to see whether the grasses have altered soil quality and/or enhanced soil carbon. My research will show how management of perennial grasses can be used to enhance the climate benefits of replacing fossil fuels with perennial grass biofuel crops and provide insights into the comprehensive climate and soil quality benefits of using these crops to replace fossil fuels in the manufacturing of cement.

### **Use it or Lose it: How Sexual Reproduction and Range Limits Interact in *Decodon verticillatus***

Presenter: Corrina Thomsen, Biology

Faculty Supporter: Dr. Chris Eckert

Why do most species live in a range that does not have a physical boundary? Mountains and oceans present obvious boundaries to range expansion, but most species' range limits lack such obstacles, and end at a seemingly arbitrary point in space. These ranges generally represent a species' niche, or the environments in which the species can grow, survive, and reproduce. Outside of this niche, individuals are poorly adapted to the environment and fail to create a viable population. Individuals at the range limit, however, exist in an environment that is similar to that outside of the range, and one might expect that they gradually adapt to these conditions and slowly expand their niche. The fact that this does not commonly occur could indicate a failure to adapt in these individuals. Adaptation is largely driven by sexual reproduction, which recombines genes and can generate new genetic combinations. However, environmental conditions and population dynamics at the range limit could prevent sexual reproduction and cause populations to become asexual or clonal. Given enough time, this could lead to loss of reproductive traits, impacting the future evolutionary potential of range limit individuals. In this study, I investigate whether sexual reproduction is lost and the effect on key reproductive traits in the aquatic plant *Decodon verticillatus* at its Ontario northern range limit.

## **Optimizing Forest Management for Atmospheric Carbon Sequestration**

Presenter: Debra Zemanek, Geography

Faculty Supporter: Dr. Warren Mabee

Forest disturbances from logging activities in Canada's boreal forest influence forest structure and nutrient cycling. Understanding the effect of Canadian forest industry practices on carbon uptake, storage, and release is important for forest management. Forest management is an important component of climate change mitigation through the removal of carbon from the atmosphere. Changes to forest structure and soil nutrient storage can have significant impacts on primary productivity. Primary productivity is a measure of the rate of carbon sequestration in forest biomass. Reviewing the literature on forest ecosystem carbon dynamics will inform on how to maximize carbon sequestration in forest management. Identifying forest industry practices that result in the highest rates of carbon sequestration is an important step for sustainable forest management.

### **Session II: Ethical Societies I**

**Seminar Room, Queen's Learning Commons, Stauffer Library**

**Thursday, March 10, 9:30-11:10**

**Moderator: Dr. Valerie Michaelson, Religious Studies and Faculty of Health Sciences**

### ***Bhasin v Hrynew* - The New Duty of Good Faith in Contract**

Presenter: Brittany Scott, Law

Over the past number of years, the law surrounding the requirement to operate in good faith in conducting contractual obligations has been a developing principle in common law countries from Australia, to the United Kingdom to Canada. In Canada, this principle has developed separately within the civil and common law legal traditions respectively. While the Quebec *Civil Code* has historically provided for an expectation of parties to a contract to operate in good faith, the common law in Canada has not been as clear. Prior to 2014, the Canadian common law duty to negotiate in good faith was an unsettled body of law, recognized in certain areas, but not across the discipline as a whole. It has only been since the Supreme Court of Canada decision in *Bhasin v. Hrynew* that this duty to negotiate in good faith has been outlined as a coherent set of guiding principles. Parties to a contract are now both bound by a general organizing principle of good faith in contracts and are expected to act honestly in the performance of their contractual obligations. While new to the Canadian common law, numerous cases have been quick to test the court's interpretation of this change in scope to the law of good faith. As Canadian common law jurisprudence moves forward, this principle will continue to expand and develop.

### **Assessing Diversity Policy at Service Ontario**

Presenter: Rachel Chan, Sociology

Faculty Supporter: Professor Sarita Srivastava

Canada's official Multicultural policy is often perceived as a leader for its commitment to equality and diversity. The Canadian government has commitments to promoting diversity and fostering inclusive environments in public service, but personal experiences of discrimination continue. The purpose of this study is to interrogate the disjuncture between intended policy goals and lived manifestations of

inequality. The existing literature demonstrates that racism persists in Canadian society. However, the scholars in this field have not adequately addressed the efficacy of such policies and their substantive impact. It is integral to interrogate this gap in knowledge because of its impact on the lived experience of minority populations. This study intends to see when and why some policy initiatives work and others do not. A genealogical analysis of Canada's multiculturalism policy will be implemented to understand the context of diversity policy. This historical view will be contrasted with multiculturalism in practice with Service Ontario as a case study, using interviews with current staff and quantitative data from the 2014 Service Ontario employee survey. Furthermore, perspectives from the emerging field of the sociology of emotions will be employed, as emotion is a fundamental dimension of discrimination. It is argued that the existence of diversity policy and departments can paradoxically lead to oppression by hiding more covert manifestations of racism. The language of diversity is often injected into policy, which provides a veneer of commitment to diversity issues without achieving substantive change.

### **Post-secondary Students' Perception of Flu Immunization**

Presenter: Kathryn Sistosio, School of Baccalaureate Nursing, St Lawrence College

Faculty Supporter: Maha Othman

During the H1N1 pandemic, young adults and college students were noted to be susceptible to influenza. Despite the guidelines for post-secondary education issued by the Center for Disease Control and despite informative campaigns implemented by all institutions, young adults still show low immunization rates. This study aims to examine post-secondary students' perspectives on influenza immunization. A short online questionnaire was designed. The questionnaire included questions about the participants' age, gender and program of study. Participants were asked if they have recently received the vaccine or if they chose not to, and what were their reasons/views on flu immunization. The study received ethical clearance by St Lawrence College's (SLC) Research Ethics Board and the online questionnaire was administered via a mass email to all SLC students across the three campuses. Of the 186 participants, 78% were females and 69% were between 18-24 years. 19% of participants reported to receive the vaccination on campus, 38% were vaccinated off-campus, while 43% did not receive the vaccine. The most commonly reported reasons for vaccination among students were being a program requirement (74%) and believing vaccine makes illness milder if they ever contracted the flu (11%). 37% of the non-vaccinating participants perceive the vaccine as unnecessary, while 12% believed that flu vaccine can make them ill. We conclude a significant percentage of students remain unvaccinated and may not view the flu vaccine as important. Misconceptions concerning the flu vaccine exist and providing more clear and accurate information may enhance flu immunization efficiency among students.

### **Relating Land-Use Change to Soil Properties in a Seeley's Bay Silt-Loam Soil: A Critical Role for Sustainable Soil Management**

Presenters: Maddy Lightle and Vanessa Ong, Environmental Science

Faculty Supporter: Neal Scott

Soils are highly complex systems where the intersection of physical, chemical, and biological properties provides ecosystem services critical to society. In this study, we explore the impacts of land-use change and management on soil properties from a Seeley's Bay silt-loam soil, northeast of Kingston, Ontario. These soils are characteristically fertile, used to produce corn, grains, hay, and soybeans. The study sites include a control site with no known history of cultivation (Forest 1) and two farms using different crop-rotation systems. Farm 1 uses minimal tillage and chemical fertilizer in a "traditional" corn-soybean-hay rotation – there is a history of extensive tillage. Farm 2 employs minimal to no-till practices and a more



complex rotation. Barley, a short-term cover crop, helps to conserve nutrients, and alfalfa helps to build soil nitrogen supply.

Only manure is used as a fertilizer in this system. We measured differences across the farms in: bulk density, pH, soil-water content and water-holding capacity, particle size distribution, soil colour, organic matter content, and microbial activity. Our results show that forest conversion to agriculture leads to a loss of soil organic matter, reduced pH, and increased surface sand content. We also found significant differences attributable to management. Soil bulk density and organic matter were lower at Farm 1 than Farm 2, likely due to tillage impacting soil structure and decreased soil-carbon availability to microorganisms. Our findings suggest an important role for the development of more sustainable soil management techniques that maintain, if not enhance, the quality of our finite soil resources.

## **Case and Challenges for Universally Subsidized Child Care in Canada**

Presenter: Cecilia Daoyun Yang, Law

Faculty Supporter: Dr. Kathleen Lahey

This presentation presents a case for universally subsidized childcare. It examines the need for change, gives an overview of the current options available to Canadian families, followed by an examination of alternative policies, costs and benefits of subsidized childcare, different modes of implementation, and costs and benefits of each mode of implementation. While there are many policies that can improve the lives of Canadian mothers' and children for the better, few can deliver the widespread social and economic benefits that can be achieved through universally subsidized childcare. This presentation identifies many of the harms and difficulties regarding the implementation of such a program but still recommends it because the benefits are so immense.

### **Session III: Panel Discussion: Experiential Learning: a student perspective**

**Speaker's Corner, Queen's Learning Commons, Stauffer Library**

**Thursday, March 10, 2016, 11:30-12:30**

**Moderator: Gemma Boag, Policy Advisor, Policy Development and Analysis Directorate, AAFC**

A panel discussion with four Queen's undergraduates who will discuss their experiential learning experiences.

Sean Price, 2nd year Economics, who participated in the DEVS 305 course in Cuba last year.

Jamie Mowbray, 4th year Global Development Studies, who participated in a work-study placement with The Stop, a community food centre based in Toronto and was also part of an exchange program at Sciences Po in Paris.

Lauren Turner, 4th year geological engineering student who has been involved in experiential learning through an independent study course on contaminant hydrogeology and through field courses in geological mapping, geophysics and geotechnical.

Emily Lewis, 4th year Global Development Studies, Major whose most recent experiential learning experience was this past summer when she participated in GDS' Work-Study Program working for

Frontier College as a literacy camp counsellor with the Lieutenant Governor's Aboriginal Summer Reading Camps in Fort Severn, Ontario on the coast of Hudson's Bay.

#### **Session IV: Letters, Diaries & Stories**

**Speaker's Corner, Queen's Learning Commons, Stauffer Library**

**Thursday, March 10, 1:00-3:00**

**Moderator: Paul Banfield, University Archivist**

#### **The Vosper Fonds: Exploring Glass Plate Negatives and Kingston Photography at the turn of the 20<sup>th</sup> Century**

Presenter: Jessica Baptista, History

Faculty Supporter: Heather Home

When 250 glass plate negatives were donated to the Historical Society of Kingston and then to the University Archives, the only information available regarding the photographs included the donor's name and the Frontenac Club as the location where they were found. The photographer's identity, the location of the photographer's studio (if he or she owned one) and why these photographs were taken remain a mystery. From the research gathered and conducted at the Queen's University Archives, it is possible to impose a history upon the glass plates. The lack of contextual information allows creative investigation to occur and also allows for future historians to learn how to expand upon the research of others. More importantly the glass plate negatives represent an aspect of the local and cultural history of Kingston. While local history is often criticized as obscure and irrelevant to the larger cultural narrative of a people's history, these glass plates offer future historians the opportunity to re-evaluate the importance of social history and its role in creating a cultural identity.

#### **A So-Called Culturally Impoverished Region: Analysing Theatre New Brunswick's First Decade of Theatrical Entertainment**

Presenter: Luke Brown, Drama

Faculty Supporter: Prof. Jenn Stephenson

In the late 1960s, the theatre life of Fredericton, New Brunswick was bustling. Theatre New Brunswick, founded in 1968 by Walter Learning, was producing high-quality work with renowned local and national theatre artists. In almost every year of its first decade, the company toured extensively, performing plays for people who never otherwise would have seen an actor set foot on a stage. In the later years of the '70s that reputation began to dwindle. My research study, using materialist methodology described by Ric Knowles (*Reading the Material Theatre*), aims to uncover the specifics of how Theatre New Brunswick began to crack under financial pressure, and what effect that had on the framing of the province's theatrical culture. In looking at documents of their first ten years (budgets, contracts, programmes, posters, advertising, media reviews), I will investigate why the company's success faded, and extrapolate lessons for the future theatre ecology of professional theatre in New Brunswick. To date, very little scholarship has been done on the province's theatrical professional practices. This research will attempt to explain the reasons behind the collapse of TNB, and propose further questions regarding the overall value system in New Brunswick theatre. After government issued The Massey Report in 1951, art and culture was taken "from the Centre to the supposedly culturally impoverished regions" (Knowles, 129). Do we see echoes of this centrist attitude instilled in Theatre New Brunswick? How might New Brunswick successfully support its local artists, and begin to find its own unique theatrical voice?

## Works Cited

Knowles, Richard Paul. *Reading the Material Theatre*. Cambridge: Cambridge UP, 2004. Print.

### **Behind the Airwaves Archives: Working with the CFRC Fonds**

Presenter: Nicole D'Angelo, History

Faculty Supporter: Heather Home

During my Historical Internship with Queen's University Archives, I have been working on an ongoing archival research project about the campus radio station, CFRC. These materials within my project range from some items dated as early as the 1940's, but most of which I have catalogued have been from the 1970's, '80s, and '90s. While learning the foundations of archival research, cataloging, and curation, I have had the privilege of handling materials that I find extremely interesting. This includes cassette tapes, reel-to-reel tapes, and vinyl records to name a few. I was originally assigned the CFRC fonds because I currently work for the non-profit organization as their Arts Coordinator. It is because of my position that I was able to learn that many of the small facets of CFRC's cultural history have been forgotten; yet preserved over time through the archives. For instance, a self-proclaimed mascot of the station during the 1980's was a plush bear called 'Reverend T. Broadcast Bear.' Although he is immortalized through his depiction in the CFRC 55<sup>th</sup> Anniversary Magazine, as well as having a volunteer award named after him, none of the current staff at CFRC knew he existed. It is cultural history like this that archival work ensures is remembered, and preserved for new generations to enjoy. With this in mind, I have pieced together a brief summary of the social and cultural history of the CFRC station, staff, and volunteers over the latter half of the 20<sup>th</sup> century.

### **The Life and Diaries of Laura Robinson Sills**

Presenter: Lauren Luchenski, English Language and Literature

Faculty Supporter: Prof. Marta Straznicky

Queen's University Archives has in its holdings a rich primary source for a study of an early twentieth-century rural woman's experience of an unsuccessful marriage dating from the time before federal divorce laws were put into effect in 1968. Laura Robinson Sills, from Sandhurst, Ontario, recorded her life in diaries over a 45-year period (1901-1945). Until the diaries were introduced to our class, Professor Straznicky's Life Writing seminar, they had not been researched and had only been read by Herbert Clarence Burleigh, the genealogist and collector who donated the documents to Queen's. I will describe the diaries and their provenance and discuss their value for a study of early- to mid-20th-century marriage law and customs in Ontario. Using the Robinson Sills diary as a primary source of information, my presentation will include a timeline of Laura's marriage, an analysis of how her marriage adheres to and deviates from social norms of the time, and an investigation into her writing method. I will also consider and interpret the diary entries to examine the way in which she records, shares, or does not share, the personal details of her life. Overall, my presentation will explore an important aspect of the social and legal context of the Robinson Sills diary, its material format, and the author's mode of writing in order to reveal the emotional and social experience of one early-twentieth-century rural Ontario marriage. This will be the first public research presentation on the Robinson Sills Diary.

## **Birth Seasonality in Quebec, 1680-1799**

Presenter: Xiangtao Meng, Economics

Human birth seasonality is ubiquitous. Using over one million baptismal records in Quebec from 1680 to 1799, I show that the seasonal pattern of births exhibited a global peak in spring and a local peak in September. Over time, the magnitude of the spring peak declined, whereas the magnitude of the September peak rose. This pattern of births resembles the one in the 20th century from previous research. Using occupational and geographical data, I find that the pattern of births differed in social classes and locations. The magnitude of the peak in September magnified in the upper class in urban areas. Given the prohibition on family planning in Catholicism, I suggest an explanation from the seasonal work cycle. The high intensity of work in the fall correlated with a trough in the conception rate of the upper class in urban areas, and the relatively slack time in June and July during the farming season correlated with a peak in conception for the lower class in rural areas. The birth pattern was optimal, and it minimized the economic cost and the mortality risk. This study has established correlations, but the causal relationship remains a puzzle.

## **Milling about Mill Pond: an Eco-Diary**

Presenter: Megan Robertson, English Language and Literatures

Faculty Supporter: Prof. Petra Fachinger

The eco-diary is a creative interpretation of reflection of observations made during visits to a local biotope or habitat. Using materials learned through the application of Eco criticism in my English Context North America class, I critically observe and analyze the species that live in the ecosystem, the interconnections within nature, the effect that time has on that particular habitat, the influence that nature has on humans, and the positive and negative consequences that human actions or lack thereof have on the environment. The creative aspect of the eco-diary is exercised in the writing component where creative writing is used to allow for an approachable perspective on the interpretations that the observer has made on the habitat they have studied. In addition, other perspectives (such as personal and historical) are embraced to create depth and greater awareness in the project.

## **Session V: Ethical Societies II**

**Seminar Room, Queen's Learning Commons, Stauffer Library**

**Thursday, March 10, 1:00-2:40**

**Moderator: TBD**

## **Golden Expectations: Corporate Social Responsibility and Governance in South Africa's Mining Industry**

Presenter: David Orr, Political Studies

Faculty Supervisor: Dr. J. Andrew Grant

South Africa has the strictest corporate social responsibility (CSR) legislation in Africa, requiring mining firms to comply with stringent requirements in order to secure and retain their mining licenses. This presentation explores how firms have responded to the complex network of governance initiatives that exist to encourage mining firms to engage with communities through CSR. However, mining companies operating in South Africa face three distinct challenges. The rise of a second mining union has caused unrest among mine workers; second, South African gold and platinum mines face low mine life

expectancies; third, the commodity slump has left mining companies hurting with razor-thin profit margins and diminished capital expenditure opportunities. Yet despite these three challenges, firms continue to operate in the South African sphere and moreover, match and often exceed the CSR obligations demanded by the state to redress the inequalities of *apartheid*. This is a scholarly and policy-oriented puzzle, for if one imagines a corporation to be a rational, profit-seeking entity, then it would be natural for the company to meet the CSR legislation in order to retain their license to operate in South Africa, but it is unexpected that a firm would exceed it. Understanding this phenomenon forms the crux of this investigation and will facilitate a stronger understanding of how mining firms operating in South Africa have responded to the legislated CSR norms and the effect that they have had on both their governance strategies and their engagement/identities with the state and civil society. The presentation will also include the results of my interviews with stakeholders undertaken in South Africa between January and February 2016.

## **Innocent Victims: Constructions of Vulnerability and Siege in International Humanitarian Law**

Presenter: Michael Scott, Law

Faculty Supporter: Prof. Sharryn Aiken

This presentation postulates that the protections offered by International Humanitarian Law were shaped by and continue to reflect social constructions of vulnerability and victimhood. Specifically, it examines Article 17 of the Fourth Geneva Convention, which reads:

*"The Parties to the conflict shall endeavour to conclude local agreements for the removal from besieged or encircled areas, of wounded, sick, infirm, and aged persons, children and maternity cases, and for the passage of ministers of all religions, medical personnel and medical equipment on their way to such areas."*

This provision—by listing people who are socially constructed as vulnerable—fails to provide protection for all civilians. Adult men and women are not protected by this article. Empirical research suggests that some of these excluded civilians may be at greater risk when a besieged enclave is captured. Military-aged men are socially constructed as, at least, potential combatants and may be summarily executed by the attacking force. The continued failure to recognize and provide protection based on this reality undermines the fundamental principles of non-discrimination (among non-combatants) and distinction (between combatants and non-combatants) in International Humanitarian Law. Ultimately, this essay argues that non-combatants could be better protected through an assessment of the actual risks faced by individual civilians.

## **A New Approach to Preserving Financial Stability: Evaluating Macroprudential Policies in Canada**

Presenter: Benjamin Swan, Economics

Faculty Supporter: Professor John Murray

Steeply rising levels of house prices and mortgage debt have been identified by the IMF as a primary risk to Canada's financial stability. To date, the Minister of Finance has attempted to address this concern by announcing three major rounds of changes to mortgage insurance rules, a form of macroprudential policy. This paper aims to estimate the effectiveness of Canada's macroprudential policies in light of the recent international shift toward this approach to preserving financial stability. Firstly, I consulted the

economic literature on financial stability and housing markets to establish the empirical basis for Canada's actions. Next, I extended the model introduced by Krznar and Morsink for estimating the effects of each policy round by introducing regional data. While Canada's policy measures have largely been significant in restraining house price growth, I found evidence of asymmetric impacts across regions, which may reflect the unsuitability of Canada's macroprudential policy both in content and in the context of their institutional layout. I concluded that Canada could benefit from revisiting its macroprudential approach; despite the lack of strong results seen thus far, this reflects shortcomings in Canada's approach and not in the promise of macroprudential policy itself.

## **Housing Issues On and Off First Nations Reserves in Canada**

Presenter: Ellen Rowe, History and French

This paper discusses the problems of the lack of certification of possession (property) and poor housing conditions within First Nation communities both on and off reserves in Canada. It argues that in the last 140 years, Indigenous peoples have become dependent on the resources provided by the Canadian government, as first agreed upon in the Indian Act of 1876. Investigating the causes, potentially including budgeting constraints or Department of Indigenous Affairs regulations will provide a clearer understanding to what are the factors causing the problems. There have been significant decreases in the amount of money given to reserve communities, which can be seen to have elevated homelessness and over-crowding in existing dwellings. As explained in the Senate Report of 2007, due to lack of housing, "16 or more members of the reserve can be found living under the same roof." [\[1\]](#) In this research essay, the Indian Act will be examined in order to determine what barriers exist, that continue to prevent communities on and off reserves from gaining the certification of possession in Canada and improving housing conditions. First Nations populations continue to rely on aspects of the Indian Act and any funds provided by the Federal Government, which continues to result in shortages of basic essentials such as housing. Even so, governmental policies and documents such as Senate reports or First Nations organizations remain useful in presenting new ideas for solving ramifications, across the country.

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[\[1\]](#) Canadian Senate Report, 2007

## **Urban Playscapes Project**

Presenters: Allison Murray, Kaila Raimondo, Samantha Russell & Nicolle Weaver

Faculty Supporter: Dr. Jeff Masuda

This study evaluates the spatial accessibility of playgrounds within the city of Kingston in relation to neighbourhood socioeconomic status and major city intersections. Using a geographical information system, all playgrounds within Kingston and the surrounding area were plotted. Constructing buffers to measure walking distance, major intersection distance and neighbourhood accessibility, nearest playground distance was found. Through introspective inquiry using the *Seven C's* guide to young children's outdoor play spaces, playgrounds were surveyed and scored based on relevant criteria. Scores were included to calculate buffer size as well as neighbourhood socioeconomic status. Quintiles (Q1-Q5) were also plotted on the map to ensure accurate representation of neighbourhoods based on the *Canadian Marginalization Index*. It was concluded that residential segregation disproportionately places lower scoring playgrounds in more impoverished neighbourhoods (Q4 & Q5) while high scoring playgrounds were almost always within middle to high income neighbourhoods (Q1-Q3). Using this information, further analysis is being conducted on children's *Right to the City* as well as playground accessibility and unstructured play developmental benefits.

## **Session VI: Innovation & Invention: Changing Outcomes I**

**Speaker's Corner, Queen's Learning Commons, Stauffer Library**

**Thursday, March 10, 3:30 -4:50**

**Moderator: Dr. Georgia Fotopoulos, Geological Sciences and Geological Engineering**

### **Effect of Remote Ischemic Preconditioned Serum from Rats on TBI Outcome in Zebrafish**

Presenter: Kisa Iqbal

Traumatic brain injury (TBI) is the leading cause of death and morbidity in North America. Not only does it place a heavy economic burden on the healthcare system, but it has social implications as well, affecting the quality of life of ten million people worldwide. Experimental studies have demonstrated that remote ischemic preconditioning (RIPC) regimens on hind limbs of rats have conferred protection to ischemic-reperfusion injured (IRI) hearts by reducing infarct size and decreasing arrhythmias. TBI involves inflammatory tissue responses that are similar to those involved in IRI, making this a common pathway by which RIPC may confer beneficial properties. This project investigated whether the biochemical messengers released in preconditioned serum of Sprague-Dawley rats could effectively confer tolerance to zebrafish (zf) that undergo a traumatic brain injury. Rats were subjected to hindlimb RIPC, their serum was extracted, and was injected into zf via an i.p. injection preceding a TBI. TBI was induced using a pulsed high-intensity focused ultrasound (pHIFU). Behavioural and histological analyses were carried out to investigate evidence for improved outcome after injection of preconditioned serum. Previous research has not investigated the transference of RIPC serum between species or characterized the unknown factor(s) responsible for conferring beneficial properties. If this factor(s) can be isolated and characterized, it may have important preventative implications for individuals involved in high-risk activities such as militants and athletes.

### **A Retrospective Chart Review: Adolescents with Borderline Personality Disorder, Borderline Personality Traits, and Controls**

Presenter: Ellen Jopling, Psychology

Faculty Supporter: Dr. Sarosh Khalid-Khan

With an estimated lifetime prevalence as high as 5.9% in the general population, Borderline Personality Disorder (BPD) is a psychiatric disorder characterized by difficulties in interpersonal relationships, self-image, and affects, as well as marked impulsivity<sup>1,2</sup>. The burden on the health care system is immense, with BPD patients accounting for 10-20% of the patients in mental health outpatient facilities and 15-40% in mental health inpatient facilities<sup>3</sup>. Further, while 75-80% of BPD patients attempt to commit suicide, 10% succeed; this mortality rate exceeds even that of anorexia nervosa which, with a weighted mortality rate of 5.1%, has often been considered to have the highest mortality rate of any mental disorder<sup>4,5,6</sup>. In order to provide treatment and to implement preventative measures, a risk profile as well as clinical features must be identified within the adolescent population. This is presently crucial, as the current criteria for BPD are not developmentally-focused, and as a result, criteria initially developed for the adult population are being applied in diagnoses of adolescents. A population of adolescents (N=80) between 16 and 19 years of age meeting DSM-5 criteria either for BPD traits (N=46) or for BPD (N=36) were included in a retrospective chart review; a control group consisting of N=30 mood and anxiety control subjects were included to allow for further comparisons. Complex significant differences were

discovered between the three groups in the following areas: history of sexual abuse, suicidal ideation, internalizing/externalizing symptoms, interpersonal difficulties, impulsivity, pre-perinatal stress, bullying, substance abuse, anxiety disorders, disruptive disorders, and finally, learning disorders.

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## **Clinician Choice of Direct Laryngoscopy vs Video Laryngoscopy for Emergency Airway Management**

Presenter: Casey Petrie, Medicine

Faculty Supporters: Dr. Heather Murray, Dr. Kim Turner, and Dr. John Murdoch

Introduction: Emergency department (ED) and intensive care unit (ICU) teams are responsible for the care of a population which is especially vulnerable to conditions requiring immediate and decisive airway control. Our study aimed to determine if physicians performing emergency intubations will choose direct laryngoscopy or video laryngoscopy more frequently, and which intubator or intubation factors influenced the decision to choose direct versus video laryngoscopy.

Methods: Emergency intubations occurring in hospital were recorded via an operator-completed survey following emergency intubations.

Results: 51 cases were captured, 32 in the ICU, 16 in the ED, and 3 on regular wards. The direct laryngoscope was the first choice of device 32 times (63%) and the Glidescope videolaryngoscope 16 times (31%). A Glidescope was used to “rescue” failed direct intubations 8 times; a direct laryngoscope was used to rescue failed glidescope intubations twice. Intubators were more likely to choose the Glidescope for intubations which they predicted to be difficult. Both modalities were chosen across all levels of training and every specialty, with the exception that all emergency physicians chose direct laryngoscopy first.

Conclusion: Physicians working in high acuity care environments use both direct laryngoscopy and Glidescope video laryngoscopy to intubate. The Glidescope video laryngoscope was chosen more frequently than direct laryngoscopy when intubation was predicted to be difficult, and despite this was



successful in a greater number of cases (92% vs 71%) in our study. Both devices had notable failure rates, emphasizing the importance of ubiquitous training in both techniques and access to both devices.

### **Characteristics of Early Analgesia in Adults Presenting with Acute Trauma to a Level 1 Trauma Centre**

Presenter: Casey Petrie, Medicine

Faculty Supporter: Dr. Tim Chaplin

Background: Acute pain is one of the most common symptoms experienced by patients following trauma, yet under two-thirds receive analgesic medication when presenting to the emergency department. Although this may be a result of physician concern about masking symptoms or exacerbating hemodynamic instability, it is unclear if there are any patient or injury features associated with oligoanalgesia. Our study looks to examine the characteristics of analgesic administration to trauma patients in the ED of a level 1 trauma center.

Methods: This is a retrospective chart review of 300 sequential patients requiring trauma team activation at our level 1 trauma center. We included patients that were 18 or older and who had a complete record of their visit. We recorded details of any analgesic medication that was delivered within 120 minutes of their presentation to the ED.

Results: 346 charts were reviewed, 46 were excluded due to incomplete data or age <18. 69% of patients received some form of early analgesia. The most frequently administered medication was fentanyl. Patients were more likely to receive analgesia with an ISS > 15 than those with an ISS of 15 or lower. The higher a patient's GCS on arrival, the more likely they were to receive analgesia, and the longer they would need to wait for first administration.

Conclusions: Trauma patients with severe injuries were more likely to receive analgesia in the ED. While patients with higher GCS were more likely to receive analgesia, they would also wait longer for it to be administered.

### **Session VII: Flora, Fauna & Merryweather II**

**Seminar Room, Queen's Learning Commons, Stauffer Library**

**Thursday, March 10, 3:00-4:20**

**Moderator: Dr. Stephen Lougheed, Biology and QUBS**

### **Disentangling the Speciation of Crowned-Sparrows (*Zonotrichia atricapilla* and *Z. leucophrys*)**

Presenter: Ashley Bramwell, Biology

Faculty Supporter: Dr. Stephen Lougheed

The question of how species arise is fundamental to evolutionary biology and our understanding of every known species' origins. If speciation occurs too slowly to study in real time, we can look for traces of an organism's evolutionary past in their DNA. Evolutionary trees can then be used to visualize relationships between species. However, the arrangement of these trees' branches can be called into question when genes evolve along seemingly different trajectories. Although this can occur for any number of reasons,

two processes are particularly challenging to tease apart; when different species mate to produce hybrid individuals, vs. when ancestral genes haven't finished sorting into descendant lineages. At least one of these two processes is believed to be responsible for the close-relatedness of white-crowned (*Zonotrichia leucophrys*) and golden-crowned (*Z. atricapilla*) sparrows. Despite having distinct plumages, songs, and behaviours, they can often be nearly impossible to distinguish genetically. It's even been suggested that their DNA sequences are so undifferentiated that they could easily be mistaken for a single species. Is this due to hybridization, or have their genes not had enough time to sort themselves appropriately? I concluded that both of these were important in shaping relationships within and between white- and golden-crowned sparrows. I also found strong support for their statuses as true species. Given the importance of *Zonotrichia* sparrows as model organisms, these results could be used to draw widely applicable conclusions about the history of other organisms, and contribute to a greater overall understanding of avian evolution.

### **An Analysis of the F<sub>1</sub> Phase in the Pigeon's Pecking Movement**

Presenter: Lauren Smail, Psychology

Faculty Supporter: Dr. Niko Troje

During pecking, pigeons perform two distinct stop phases with their head, F<sub>1</sub> and F<sub>2</sub>, which are hypothesized to represent respectively the pigeon's decision to peck at a broad target area, and the calculation of finer details such as depth and size of a target. Our study was conducted to assess the function of these phases, with a focus on the decision making stop phase (F<sub>1</sub>). Pigeons were trained with operant conditioning to distinguish between two circular white stimuli: one surrounded by a red square and the other by a yellow square. Once the pigeon reliably chose the correct coloured stimulus, we made them increasingly similar in colour. If the F<sub>1</sub> phase represents the decision to peck, then as the stimuli become difficult to distinguish, F<sub>1</sub> durations should increase. The results show that pecking accuracy decreased as the two stimuli became more similar, allowing us to see that the decision had become more difficult for the bird. However, decision difficulty was unrelated to stop phase duration. The current results do not confirm our hypothesis that the F<sub>1</sub> phase is where the decision to peck occurs. However, these results are based on preliminary data from a small sample size, and as such we are limited in what we are able to conclude. The decreased pecking accuracy as decision difficulty increased is promising, and while this pattern of increased difficulty was not exhibited in our F<sub>1</sub> stop phase duration analyses, the trend may become pronounced as we continue to collect more data.

### **Fishing for Answers: Do Protected Areas Prevent the Selective Removal of the 'Best' Largemouth Bass Dads**

Presenter: William Twardek

Faculty Support: Dr. Stephen Loughheed

While the use of aquatic protected areas that exclude angling might be considered an evolutionarily-enlightened management approach to dealing with fisheries-induced evolution (FIE), there is little empirical data on the effectiveness of this approach at maintaining the diversity of phenotypic traits within protected areas. In species with parental care, including largemouth bass (*Micropterus salmoides*), active nest guarding and aggression towards potential brood predators by males may render these individuals particularly vulnerable to capture via angling because of increased propensity to attack fishing lures near their nests. Selective removal of more aggressive individuals by anglers should therefore drive population-average phenotypes towards lower levels of aggression. To assess the effectiveness of protected areas at mitigating FIE, the parental care behaviours of wild, free-swimming male bass were

compared during the early nesting period for bass within and outside protected areas. It was found that nesting males within long-standing fishing protected areas (>70 yrs) were more aggressive towards potential nest predators. Males within protected areas were also more likely to strike at artificial fishing lures and more prone to capture during angling events. Collectively, the findings suggest that recreational angling selects for individual bass with lower levels of parental care and aggression, and that the establishment of protected areas may mitigate this potential FIE at the population level. The extent to which this phenomenon is found in other species and systems likely depends on their reproductive strategies, their spatial ecology relative to protected area boundaries, and habitat quality within protected areas.

### **Characterization of two wheat Carotenoid Cleavage Dioxygenases as possible gene targets against Fusarium Head Blight**

Presenter: Anjali Vig, Biochemistry

Faculty Supporter: Dr. Michele Loewen

Fusarium Head Blight (FHB) is a fungal disease of wheat caused by the organism *Fusarium graminearum* (FG). Presently, there are no genes known to impart resistance to FHB. However, in a recent study by Swiss scientists, it has been demonstrated that increased content of the carotenoid lutein in wheat kernels is negatively correlated with the proportion of kernels infected by FG [1]. Therefore, this study attempts to identify a means of maintaining elevated levels of lutein in wheat kernels through the characterization of the specific Carotenoid Cleavage Dioxygenase (CCD) enzymes responsible for lutein degradation. By understanding CCDs and the mechanisms by which they interact with lutein, we hope to identify a means of breeding wheat crops with resistance to infection by *Fusarium graminearum*.

**Friday, March 11**

**Session VIII: Welcome and Keynote**

**9:00 to 10:30, Speaker's Corner, Stauffer Library**

**Please note: The order of speakers may change**

**Risk takers: At the beginning of their careers and at the zenith**

**Moderator: Vicki Remenda, Associate Dean (Acting) (Teaching and Learning)**

**Keynote Speaker: Dr. Art McDonald, Professor Emeritus and Co-winner 2015 Nobel Prize in Physics**

**The gap between the subjective and the objective: Experiencing time and change**

Brittany Moore, Philosophy

Faculty supporter: Dr. J. Mozersky

A-theorists and B-theorists have been debating the nature of time for many years, and the discussion is not yet close to being finished. In this paper I aim to deny the possibility of raw change on the grounds that the gaining or losing of parts – which is essential for change – destroys identity. So, the passage of time (as described on the A-series), which is a kind of change, is impossible. It follows that the A-series cannot be an adequate description of time. Consequently, I aim to defend the B-series. I will argue that we experience the world as changing even though it is not by comparing our experience of time with our experience of the sensory world. I will argue that since there appears to be a pattern in how we perceive exterior phenomena as shown by the Gestalt laws of grouping, there exists likelihood that this pattern is also apparent in how we experience change and ultimately time. I will be speaking about the relationship between change and time, and ultimately why raw change is impossible. I will defend my thesis by talking about the details of manifest time and then move on to how we experience the world by drawing on Gestalt theories in order to show certain patterns in our perception. I will finally explain how our experience of the world and conception of time influences our language.

**Comedian Performance: Lysistrata**

Lucas Meadows (Kleonike); Jackson Fielding (Kinesias); Sasha Crawford (Lysistrata);

Tyli Onel (Director); Phyllis Stratford (Costumes and Props);

Classical Studies 312

Faculty supporter: Drew Griffith, Classical Studies

A performance of a scene from the ancient Greek play *Lysistrata*, written by Aristophanes. The play is about Lysistrata an Athenian woman, who organizes a secret conference at which she persuades the other women to swear an oath that will deny sexual intercourse to their husbands until the men agree to end the war. The scene is about Kinesias, a man who has come back from war desperate to sleep with his wife Kleonike. Kleonike is one of the women who have taken the oath, so keep watching to see what she will decide to do!

## **Childhealth 2.0 Youth Advisory Group**

Faculty supporter: Dr. Valerie Michaelson

Adam, Cameron, Isobel and Lily

Leaders: Drs. Colleen Davison and Valerie Michaelson and students Nel Vandermeer, Lindsay Davison & Caroline Piccininni

## **Session IX: Turning Things on Their Head**

**Speaker's Corner, Queen's Learning Commons, Stauffer Library**

**Friday, March 11, 10:40 to 12:00 noon**

**Moderator:** Dr. Johanne Bénard, French Studies/Études françaises; Associate Dean (Admission & Recruitment) and Associate Dean (Studies)

### **A Six-Legged Performance**

Presenter: Samantha Kuipers, Drama (via Skype)

Faculty Supporter: Natalie Rewa

Presentation via *Skype*

The relationship of a calf and herdsman during the dairy showing process can reflect the relationship of an actor to another actor. An interspecies relationship opens up a new realm of problems that would not be faced through an actor to actor team but techniques on overcoming these challenges can be shared. Challenges include communicating without language, the importance of trust in rehearsal, voice without words and what you are saying with your body. Understanding interspecies relationships can help cultivate deeper connections between cast members and humanize a theatre production.

### **Cross-gender Casting Inhibiting Suspension of Disbelief in Queen's School of Drama and Music's production of Shakespeare's Macbeth**

Presenter: Morgan Anderson, Drama

Faculty Supporter: Prof. Jenn Stephenson

Theatre theorists have started to understand physical materials not only as passive vehicles for human action, but also as able to act alongside and affect human performers (Schweitzer and Zerdy, Sofer). No theatrical prop makes this more visible than the human skull which can be seen at once as an object and the remains of a subject, confusing the audience's ability to suspend their disbelief and accept it as a part of the fiction. As the audience questions the history of the subject behind the object, the skull's reality distracts from the human actor playing alongside it and makes obvious the precarious nature of acting (Monks, Sofer, Werry). This research project will explore the skull as a stage prop that oscillates between subject and object; first, to expose the subject/object status of human actors, and second, to offer insight into how casting choices can affect an audience's suspension of disbelief during a performance. To demonstrate how the human actor body can be understood as an object able to act independently of the subject who carries it, this project examines cross-gender casting in Queen's School of Drama and Music's production of Macbeth. The characteristically female actor bodies playing famously male roles in this performance of Shakespeare's famous tragedy inhibit its audience's ability to suspend their disbelief during the play, ultimately exposing the precarious relationships in theatre between fiction and reality, subject and object.

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## **La représentation de la mort dans *L'Écume des jours***

Presenter: Neal Dawan, French Studies

Faculty Supporter: Johanne Bénard

Boris Vian n'aurait pas pu choisir un titre plus approprié pour son roman *L'Écume des jours*, écrit en 1947. Ce roman, c'est en effet l'histoire de la vie de Colin, vie dont les jours s'enchaînent et se ponctuent peu à peu de malheurs puis finissent par la mort inévitable du protagoniste. Colin vit à Paris après la Seconde Guerre mondiale : c'est un homme riche, célibataire et apparemment heureux qui mène une vie simple. Après avoir découvert que son meilleur ami, Chick, avait trouvé une petite amie, Colin tombe également amoureux d'une jeune fille prénommée Chloé lors d'une fête organisée par un de ses amis. Mais très vite Chloé tombe malade à cause d'un néufar qui pousse dans un de ses poumons : le seul remède est la couvrir de fleurs, alors Colin se ruine pour les lui offrir et sauver son amour. Je propose de présenter l'analyse littéraire de ce roman à partir de la manière dont Boris Vian utilise un processus de décomposition dans le monde des personnages principaux, Colin et Chloé, pour représenter la présence de la mort dans le roman. Je vais tout d'abord me concentrer sur les indices du texte qui dévoilent la dégradation physique de Chloé. Ensuite, j'examinerai la détérioration de la vie de Colin au niveau émotionnel. Finalement, je discuterai de la manière dont l'appartement de Colin matérialise la maladie de Chloé dans l'espace et la façon dont il se transforme.

## **Should Canada Eliminate Cash?**

Presenter: Madeline Hanson, Economics

Canadians' use of cash at the point of sale has been declining since the early 1990s, due in part to the widespread adoption of debit and credit cards. More recently, the introduction of electronic currencies and person-to-person payments via mobile phone have made the need for cash as a medium of exchange obsolete. My research draws on data from the Bank of Canada's Method of Payment Surveys to perform a cost-benefit analysis of eliminating cash within Canada and moving towards exclusively electronic means of payment. My research pays particular attention to the fact that eliminating cash removes the lower bound on nominal interest rates, enabling conventional monetary policy to be implemented in Canada's current low interest environment. My findings suggest that though Canada is not yet ready to eliminate cash, the benefits are such that there may be reason to pull Canadians towards a cashless society.

**Session X: Innovation & Invention: Changing Outcomes II**  
**Seminar Room, Queen's Learning Commons, Stauffer Library**  
**Friday, March 11, 10:30 – 11:50**  
**Moderator: Dr. Robin Dawes, School of Computing**

### **Expanding the Scope of Enantioselective Rhodium-Catalyzed Allylic Substitution with a Nitrile Anion**

Presenter: Mai-Jan Tom, Chemistry

Faculty Supporter: Professor P. Andrew Evans

In chemistry, a pair of molecules that have the same connectivity, but are non-superimposable mirror images, much like the human hand, are called enantiomers. In nature, enzymes are able to catalyze the selective synthesis of one of these forms. However, in the laboratory, we currently rely on metal-catalysts to fulfill this role.

The efficiency and side effects of a drug can be drastically changed depending on which enantiomer is present. As a result, the pharmaceutical industry is interested in the selective synthesis of one enantiomer of a drug over the other. Furthermore, crucial drugs in the pharmaceutical industry contain a nitrile functional group ( $-C\equiv N$ ), which are largely found on aromatic or fully-substituted carbons to prevent the release of toxic cyanide. This research involves the use of a chiral rhodium catalyst to direct the formation of one enantiomer over another in the synthesis of fully-substituted nitriles. Hence, the synthetic utility of this reaction is especially beneficial to the pharmaceutical industry. For example, one of the top 200 drugs in 2015, verapamil, is a nitrile containing compound. Verapamil is a calcium channel blocker prescribed to treat high blood pressure by relaxing the blood vessels to allow for easier blood flow. The presentation will describe the development and evaluation of the scope of this novel reaction and our efforts to develop a synthesis of (S)-verapamil.

### **The Association Between Social Motivation and Theory of Mind in Adolescents**

Presenter: Caleigh Treissman, Psychology

Faculty Supporter: Dr. Elizabeth Kelley

Introduction: Everyday, individuals must make sense of complex social situations. To do so, individuals must use their theory of mind (ToM). ToM is the ability to identify, explain and predict the mental states of others (e.g. beliefs, emotions; Baron-Cohen et al., 1985). This skill is critical for normal social functioning – poor ToM is associated with both bullying and serious psychiatric disorders (Shakoor et al., 2012; Frith, 2001). In order to prevent the negative outcomes associated with poor social cognition, it is important to understand factors that may be associated with ToM.

One factor that may be associated with ToM is social motivation (SM). SM is a set of psychological predispositions that cause an individual to preferentially orient to the social world, to foster social relationships and to take pleasure in social interactions (Chevallier et al., 2012). Individuals with heightened SM may allocate a greater proportion of their attention to others, leading to more opportunities to practice their ToM skills.

Hypothesis: I hypothesize that social motivation is positively associated with ToM.

Methods: The expected sample includes 60 adolescents between the ages of 13 and 18. Participants completed four well-established ToM tasks and a questionnaire on social motivation (Baron-Cohen et al., 1999; Baron-Cohen et al., 2001; Castelli et al., 2002; Droyer, 2012; Rudolph et al., 2011). Data collection began August 2015 and will be completed February 2016.

## **An Analysis of Predictors of Mental Health Stigma in Ontario Municipal Police Service Members**

Presenter: Aleksandra Usyatynsky, Psychology  
Faculty Supporter: Dr. Dianne Groll

Mental health stigma refers to negative attitudes held by society and individuals about mental illness. The adverse effects of both public and self-stigma affect an individual's quality of life and can be a barrier to care. Police service members are at particular risk of mental illness and especially likely to have negative attitudes of mental illness. Our research team has emailed a questionnaire assessing mental health in Ontario Municipal Police. In this study we will analyze the data in order to answer several research questions regarding stigma and mental health in police populations. What are the predictors of mental health stigma? We hypothesize age, gender, years on the force, and size of the department are predictors. Do individuals with a known clinical diagnosis, with a mental illness they are unaware of, or with no diagnosis at all, show the highest levels of stigma? We hypothesize individuals aware of their diagnosis will show significantly higher levels of stigma, followed by individuals with a mental illness they are unaware of. We will also assess reasons behind unwillingness to seek help; we predict stigma will be a significant reason. Finally, we will answer whether police show more stigma around a physical injury or a mental illness. We believe they will show more stigma toward a mental illness. By identifying predictors of stigma in police our research can help identify groups of people for whom education based interventions will be most effective, and increase the chances of these individuals seeking help.

## **Comparing the Influence of Hyperglycemia on Flow Mediated Endothelium-dependent Vasodilation between Healthy Males of Average Fitness and Endurance Athletes**

Presenter: Jennifer Williams, Kinesiology and Health Studies  
Faculty Supporter: Dr. Kyra Pyke

Endothelial dysfunction has been determined to be an indicator of atherosclerosis, an early stage in the development of cardiovascular disease. To detect potential endothelial dysfunction, the use of flow-mediated dilation (FMD) techniques, like reactive hyperemia (RH), is widely used in this area of research. An artery experiences FMD when there is an increase in blood velocity, resulting in an increase in the shear stress on the endothelium of the artery. In response to this, the artery's endothelium will release compounds to vasodilate the artery. A growing body of research has found that a hyperglycemic state, through the ingestion of glucose, may hinder the endothelium's ability to vasodilate in response to an increase in shear stress, thus leading to transient dysfunction of the artery. Furthermore, research is also exploring ways to attenuate this decrease in dilation. For example, one study has found that the use of exercise after ingesting glucose will attenuate this decrease in FMD response. However, research has not yet explored the relationship between fitness level and FMD in a hyperglycemic state. As a result, the purpose of this study is to compare the FMD response in sedentary participants to active participants during hyperglycemia.



## **Session XI: Pizza with the Poster Presenters**

**11:45-1:00**

**(Abstracts start on page 31)**

## **Session XII: Colonization & Appropriation**

**Union Gallery, Stauffer Library**

**Friday, March 11, 1:00 – 2:20**

**Moderator: Ms. Nathalie Soini, Queen's University Library**

### **Using Ideas and Identity to Understand the Rise of the Islamic State**

**Presenter: Isabella Gudgeon, Political Studies**

The Islamic State (IS, previously ISIS and ISIL) poses a serious threat both on the regional and international scale. Understanding the factors that have contributed to its rapid growth is crucial to combatting this threat effectively and prevent its future resurgence. Focusing on IS's unique ability to propagate messaging, this paper argues that viewing the conflict through a constructivist lens is critical to understanding the endurance of the IS in the face of international alliances, decidedly stronger in terms of 'hard' power. Using data from Berger and Morgan, this paper outlines the scope of both general jihadist and IS-specific messages online, as well as the effects the academic community has identified, such as the enhanced mobilization of resources, acquisition of both regional and foreign recruits, and gathering of support from the broader Muslim community. By analyzing jihadist message framing before, during, and after the Arab Spring, it highlights mutability of messaging tactics that allows its endurance despite social and political upheaval. Comparing these tactics to those in other historical contexts, this paper identifies the efficacy of 'othering' in shaping existing perceptions of a certain conflict, and finds that such an approach breeds a common identity and, to those exposed to such propaganda, a reconceptualization of both historical and present issues.

These findings demand a fundamental rethinking of traditional resource deployment. Though concrete policies may be difficult to conceptualize, this paper suggests the prioritization of delegitimizing the group both within the region and abroad. Initial steps towards this are reflected in Barack Obama's call at the UN to "fight ISIS with Ideas", wherein he suggests the focus be shifted towards winning the "war over propaganda" in addition to efforts on the ground.

### **Indigenous Food Systems: Battling Whiteness through Decolonization**

**Presenter: Katie King**

Shaw (2006) argues that "the rubrics of difference against which Whiteness is commonly juxtaposed rarely includes Indigeneity, or the experiences of Indigenous peoples regardless of the North American domination of the field, and its settler context" (853). Viewing Canada and the United States as post-colonial nations, this paper seeks to broaden understandings of Indigenous food production, distribution, and consumption practices and/or projects and how they work to resist colonial histories of oppression. Hooks (1992) defines decolonization as "a process of cultural and historical liberation; an act of confrontation with a dominant system of thought" (1). Using the concept of "Whiteness", this research attempts to prove how small-scale Indigenous food systems located in North America decolonize dominant ways of seeing alternative food systems as white food spaces. To present this research to an interdisciplinary audience I will first attend to defining key concepts informing this research including: post-colonial nation, decolonization, Whiteness, and Indigeneity. I will then spend some time exploring

what Sarah Whatmore describes as “Alternative Food Networks” (AFNs) and claims as “white food spaces”. Finally, in an attempt to decolonize alternative food systems as white spaces, I will share various forms of present-day, small-scale Indigenous food systems such as Wild Rice production by The White Earth Anishinaabe, the ‘Food from the Land’ program in the O-pipon-Na-Piwin Cree Nation, and various Indigenous farmers markets and community gardens.

## **Exotic as Erotic: The Sexualization of the Japanese Kimono in Nineteenth Century European Art**

Presenter: Madeleine Leisk, Art History

The late nineteenth century represented a unique period for art production as artists searched for a solution to the restrictive style of the royal art academies and new ways to represent contemporary society. With the increasing connectedness of the world during this time, due to trade, came a renewed interest in the world outside of Europe with world fairs and international exhibitions. This international intrigue was manifested in Europe through an obsession with material objects from exotic cultures. Japanese objects were of particular interest as Japan had recently been opened to the West for the first time since the sixteenth century. Exotic material culture provided the unique and contemporary approach to art that European artists were searching for. One of the most popular and visually represented aspects of exotic material culture during the nineteenth century were Japanese kimonos which artists used as an erotic symbol. My research will examine the social and cultural factors that led to the eroticization, and often fetishization, of an entire culture through the misrepresentation of a single culturally significant object. These factors include a colonialist interest in the exotic, the eroticization of Japanese prints featuring kimonos, associations between kimonos and Geishas, and the use of kimonos in Europe as a boudoir garment. This prolific eroticization of the kimono in nineteenth-century European art is just one of many cases of the appropriation of foreign cultures through culturally specific objects, an issue that still prevails today.

## ***Une idée monstrueuse: Bicameralism in the Early French Revolution***

Presenter: Sean Marrs, History

Faculty Supporter: Andrew Jainchill

In the spring of 1789, the members of the newly formed National Assembly tasked itself with the creation of France’s first Constitution. The Assembly set out to reform their country by incorporating enlightenment ideas and newfound liberties. Creating the constitution was not an easy process and the Assembly floor was home to many fierce debates, divides, and distrust amongst the Three Orders: the Clergy, the Nobility, and the Commons. One Constitutional issue was deciding what form the legislature would take. Mounier, Lally-Tollendal, and Clermont-Tonnerre, members of the Committee of the Constitution, who formed a political group known as the ‘Monarchiens,’ proposed a bicameral system that mirrored the two legislative houses of England. Their political opponents fought instead for a single chambered system. When the vote came to the house, bicameralism was defeated in a landslide.

My research aims at discovering the motivations of the deputies; Why did they reject Mounier’s bicameralism? Much of the work done on this question so far, particularly that of Keith Michael Baker, argues that the deputies were faced with a choice between radically different conceptions of the purpose of the revolution. However, the work of Timothy Tackett points to the smaller, more contingent issues at play. My work involves the analysis of the assembly debates and the political publications being written by the deputies. Similar to Tackett, I conclude that the deputies were immediately motivated less by

grand revolutionary narratives, but instead based their vote on a deep distrust of the aristocracy and political factionalism.

### **Session XIII: Visualization/Visual Representation**

**Speaker's Corner, Queen's Learning Commons, Stauffer Library**

**Friday, March 11, 1:00 – 3:00**

**Moderator: Dr. George Bevan, Classical Studies**

#### **Augmented Reality Overlay System for Computer-guided Needle Procedures**

Presenter: Zachary Baum, Biomedical Computing, School of Computing.

Faculty Supporter: Dr. Gabor Fichtinger

**Purpose:** Augmented reality overlay systems can be used to project a CT image directly onto a patient during procedures. They have been actively trialed for computer-guided procedures, however they have not become commonplace in practice due to restrictions of previous systems. Previous systems have not been handheld, and have had complicated calibration procedures. We put forward a handheld tablet-based system for assisting with needle interventions.

**Methods:** The system consists of a tablet display and a 3-D printed reusable and customizable frame. A simple and accurate calibration method was designed to align the patient to the projected image. The entire system is tracked via camera, with respect to the patient, and the projected image is updated in real time as the system is moved around the region of interest.

**Results:** The resulting system allowed for 0.99mm mean position error in the plane of the image, and a mean position error of 0.61mm out of the plane of the image. This accuracy was thought to be clinically acceptable for tool using computer-guidance in several procedures that involve musculoskeletal needle placements.

**Conclusion:** Our calibration method was developed and tested using the designed handheld system. Our results illustrate the potential for the use of augmented reality handheld systems in computer-guided needle procedures.

#### **A Virtual Guide to Rocks, Fossils and Geology**

Presenter: Rebecca Hudson, Geological Sciences and Geological Engineering

Geological interpretation and comprehension is optimally achieved with first hand access and exposure to data and materials. However, there are many scenarios where immediate access to meso-scale (<m) and macro-scale (>km) data is unattainable. This is particularly evident for remote regions and educational environments where field visits are often limited. In order to augment conventional geological investigations, we propose the use of 3D digital data of Earth materials, e.g. rocks, fossils, minerals and core samples. The approach followed will facilitate the preservation and global sharing of meso-scale samples in a manner that links and visualizes referential connections, presents the dynamic and interactive nature of geology and promotes transformations between 2D and 3D. The objective of this research is to optimize the data collection process of a 3D close-range (desktop) laser scanner for a variety of meso-scale samples of rocks and fossils used for geological applications. The ultimate goal is to embed the meso-scale samples in an interactive macro-scale environment (GIS). The optimization

process for the desktop laser scanner is not trivial as it must be evaluated on a sample-by-sample basis until a sufficiently heterogeneous and significant database of samples is acquired. This work focuses on comparing true samples with digitized models and modifying the scanning process and post-processing to achieve realistic and repeatable models. Parameters tested include target-sensor baselines, resolution of scanned samples and integration into an immersive 3D geospatial environment.

### **Virtual Reality Recording of Archaeological Artifacts: The Diniacopoulos Collection**

Presenter: Kristen Jones, Classical Studies

Faculty Supporter: Dr. George Bevan

The field of virtual reality is quickly growing across many disciplines, if none more important than the field of archaeology and cultural heritage. Numerous artifacts are uncovered each year by archaeological excavations around the world, and only a select few are displayed and recorded in museums while the rest remain hidden away in storage facilities. The use of virtual reality photography provides a potential solution to this problem. This project aims to optimize a computational workflow for digitally documenting these artifacts through an in depth analysis of the Diniacopoulos Collection of Greek and Egyptian artifacts in collaboration with the Art Conservation department at Queen's University. The Diniacopoulos Collection of artifacts has been held by Queen's since their donation in 2001 by the estate of Olga Diniacopoulos. This project combines studio Photogrammetry with a method known as Focus Stacking to optimize the quality of each image. First, images of each object will be used to generate scaled photogrammetric models in Agisoft Photoscan. The same images used to create the 3D models can also be used to create lower-resolution virtual reality movies that are easily shared on websites using the GardenGnome ObjectVR software. Utilizing another growing industry, 3D printing, takes this method one step further. 3D printing archaeological finds provides people with a tactile experience with the artifacts that would otherwise be kept safe inside museum cases or warehouses where the public has no access. These methods have applications is not only archaeology, but in a number of collaborative fields.

### **Diniacopoulos Collection: Exploring Best Practices for Virtual Galleries**

Presenter: Marissa Monette, Classics

Faculty Supporter: Dr. George Bevan

This project's purpose is to design an online exhibit for a selection of vessels from the Diniacopoulos Collection, acquired by Queen's University in 2001, and to explore the best practices for such online exhibits. This collection of sculptures, coins, and ceramics, among other artifacts, was amassed in the early 20th century by Vincent and Olga Diniacopoulos. Ten of the artifacts, ranging from the prehistoric to the late Roman period, are displayed in a glass case in the Classics Department. This display necessarily limits the viewer's understanding of the vessels' decoration and form, a problem that is particularly acute in the case of the painted vessels. It is argued that an online platform is more interactive and informative by attempting to be as intuitive to navigate as walking through an exhibit. Virtual reality and object movies present the artifacts in 360 degrees and are fully controlled by the user. This enables a careful examination of the artifacts' characteristics. The online exhibit does not endeavor to replace or degrade the objects and their value by presenting them digitally. Instead, by being able to access these objects online at any time with virtual reality amplifies and supports the physical display. The website achieves this by encouraging viewers to visit the collection in person. This online exhibit is designed using Adobe Muse, although in the future, academic publishing and web design programs, such

as Omeka, should be considered.

## **Neuroanatomical Hippocampal Structures and Heritability of Hippocampal Volume in Relation to Memory**

Presenter: Shaughnelene Smith, Psychology

Faculty Supporter: Dr. Jordan Poppenk

The goal of this project was to investigate the genetic heritability of hippocampal volume using twin pairs and assess the neuroanatomical structures of the hippocampus and how these properties relate to memory in humans. Data for this project was obtained from the Human Connectome Project: a data bank established to provide neural images to the public. MRI scans were used to obtain brain images of each of the participants and basic cognitive tasks were used to obtain memory ability. To date, 506 subjects have been analyzed: 66 monozygotic twin pairs, 44 dizygotic twin pairs, and 47 sibling pairs. The data collection for of this project was three-fold. First, segmentations were performed to calculate the volume of the anterior and posterior regions of the hippocampus. Secondly, the magnitudes of hippocampus dentations were recorded within the three segments – the head, body, and tail – of the hippocampus. Lastly, visual inspection was used to asses incomplete inversions, which was defined as an atypical anatomical pattern in the hippocampus. The results of this project showed a strong heritability observed on the right anterior hippocampus ( $h_b^2=1.365$ ) and right amygdala ( $h_b^2=1.315$ ), moderate heritability observed on the left posterior hippocampus ( $h_b^2=0.765$ ), and weak heritability observed on the right posterior hippocampus ( $h_b^2=0.2654$ ). This indicates that hippocampal volumetric heritability showed strong genetic control for the right hemisphere and strong environmental control for the left hemisphere. The project is still in the process of correlating the anatomical structures to the memory capabilities of the participants.

## **Application of the iKnife for the Enhanced Identification of Cancerous Tissue in Breast Surgery**

Presenter: Stephanie Vanner, School of Medicine

Improved tumour margin detection in breast surgery is required to reduce cancer recurrence and to minimize the amount of tissue removed. Rapid evaporative ionization in mass spectrometry (REIMS) pairs the surgical diathermy device directly to a mass spectrometer to analyze the lipid components in the surgical aerosol. This intelligent knife, or iKnife, has the potential to provide surgeons with real-time characterization of healthy versus cancerous tissue.

**Objective:** To show that healthy and malignant breast tissue can be differentiated by REIMS using coagulation and cut diathermy modes.

**Methods:** 83 patients were recruited at Charing Cross Hospital. 76 normal and 44 tumour samples were cut using a surgical diathermy handpiece and the aerosol was analyzed by mass spectrometry and confirmed by histology. Multivariate statistical analyses were used to evaluate the data.

**Results:** In cut mode, the data demonstrates 95.1% correct classification of healthy and tumour samples, with a sensitivity of 91.9% and a specificity of 95.9%. In coagulation mode, the data revealed 93.5% correct classification of healthy and tumour samples, with 89.3% sensitivity and 94.1% specificity.

**Conclusions:** This preliminary data suggests the iKnife can distinguish between healthy and malignant tissue *ex vivo* with the potential to provide intraoperative feedback to surgeons.

## **Session XI: Poster Presentations**

**Queen's Learning Commons, Stauffer Library**

**Presenters will be present at posters Friday, March 11, 11:45-1:00**

**Posters will be on view March 10 & 11**

### **1. Knowledge, Indigenous Peoples, and Film: A Critical Analysis of *Planting Stories, Feeding Communities***

Presenter: Jon Aarssen, Department of Geography and Planning

Faculty Supporter: Dr. George Lovell

The findings of academic study too often remain sequestered within academia itself, virtually inaccessible to people who could potentially benefit from them. Academics are becoming increasingly aware and disturbed by the "disconnect" between the studies they undertake, and the people in them. Through trends in Community-Based Participatory Research, participatory visual research, and documentary film, research 'subjects' are increasingly becoming partners in the process, with access and control of the results. I first met then doctoral candidate Paul Chaput in the spring of 2014. He had a vision of returning his masters findings to the Indigenous community from which they originated. Not only did he want to return his findings, he wanted to do it in a format that was more culturally appropriate than an online dissertation, one more closely associated to oral traditions that would 'plant' a story in the community. He wanted to make a film. My thesis project is a critical analysis of a 22 month long research and creative journey, which culminated in the Documentary film *Planting Stories Feeding Communities*; the story of the Indigenous creation of Native Studies courses in Ontario high schools. I served the project as videographer, sound technician, editor, director of photography, and co-producer throughout the research and production process, drawing on my previous experience as a semi-professional videographer and photographer. My thesis combines this experience with the deconstruction of the entire film making process in order to offer practical ideas for improving and streamlining the use of participatory film-making within geographical research.

### **2. Robert Sutherland's Latin Epitaph: Text, Translation, and Commentary**

Presenter: Amelia Briggs-Morris, Classics

Faculty Supporter: Dr. Barbara Reeves

Sutherland was one of the earliest graduates of Queen's University, as well as the University's first black graduate; he was also an early benefactor of the school. He graduated with honours in Classics and Mathematics in 1852, winning 14 academic prizes. Queen's has honoured its first major benefactor in many ways, including naming the Policy Studies Building and a room in the John Deustch University Centre after him, and designating several awards and scholarships in his name. The first major honour, ordered by Principal George Monro Grant in 1878, was a Latin inscribed monument set up over Sutherland's grave in Toronto's Mount Pleasant Cemetery. Sutherland's contributions to Queen's and Principal Grant's installation of the monument are well documented, but the monument itself has received almost no attention. There is no image of it or its epitaph in the Queen's Archives, and publications including the inscription do so only in English translation. In Queen's 175th anniversary year, the need to document this monument and its Latin inscription is clear. The goal of this research project was to photograph Sutherland's tombstone in Mount Pleasant Cemetery, transcribe the Latin text, translate the text into English, and provide a historical and grammatical commentary.

### 3. Sleep Problems in Children with Autism Spectrum Disorder: a Review.

Presenter: Nicole Carmona, Psychology

Faculty Supporter: Dr. Elizabeth Kelley

**Introduction:** Autism spectrum disorder (ASD) is a neurodevelopmental disorder marked by severe impairments in communication and social interactions, and the presence of restrictive and repetitive behaviours. In addition to these characteristic problem behaviours, sleep problems are common among the majority of children with an ASD and may reflect an additional component of the disorder's phenotype, rather than a comorbid condition. Sleep disorders in this population place a lot of stress on the family, contributing to more severe stereotypic behaviours and hyperactivity during the daytime and disturbing the sleep of already-stressed family members.

**Objective:** This poster seeks to summarize the research on the types of sleep problems seen in ASD, factors implicated in the aetiology of sleep problems, and how we might assess and treat these problems.

**Method:** A literature review was conducted using the phrases "autism spectrum disorder" and "sleep problems." Selected articles pertained to the study of prevalence, type, and predictors of sleep problems, their assessment, and their treatment.

**Results:** Thirty-seven articles were reviewed. Children with ASD experience more sleep disorders than typically developing children and children with other neurodevelopmental disorders. Contributing factors include more severe symptomatology, neurobiology, and psychiatric conditions. Most behavioural and pharmacological treatments lack evidence in the literature.

**Conclusion:** The impact of sleep problems in ASD on the family emphasizes the need for research on their effective treatment and the delineation of the role of sleep problems in ASD's phenotype.

### 4. The Effects of Affectionate Contact on Theory of Mind and Mental State Talk in Parent-Child Dyads

Presenter: Holly Chow, Psychology

Faculty Supporter: Dr. Mark Sabbagh

Theory of mind (ToM) is the understanding that the actions of others are influenced by their mental states: desires, emotions, beliefs and intentions. This study tested 46 parent-child dyads with children ages 3.5-4.5 years old to examine the effects of affectionate contact (i.e. cuddling) on parental use of mental state words (words that describe emotions, beliefs and desires) and child ToM task performance. Dyads were placed in one of two conditions, cuddling and no cuddling, while reading a wordless story about a snowman. Children were then instructed through a series of tasks designed to measure their ToM and executive functioning skills, the ability to switch between rules, a foundational skill for ToM development. Results showed that no significant differences were found between conditions on ToM task performance or use of mental state words. Differences amongst conditions on executive functioning task performance began to approach significance. Additionally, a significant positive correlation was found between the use of mental state words and ToM task performance, as well as a significant positive correlation between mental state words and executive functioning task performance.



## **5. Early Fine Motor Skills Predictive of Expressive Language Abilities in Infants At-Risk of Developing Autism Spectrum Disorder**

Presenter: Karly Covall, Psychology

The embodiment perspective focuses on links between language and action together, allowing for the concurrent examination of factors that dictate developing motor skills and language acquisitions. This prospective study is interested in evaluating the predictive relationship between early fine motor imitation skills and expressive language abilities of infants who have a sibling with a diagnosis of Autism Spectrum Disorder (ASD). Thus, these infants are at an increased risk of receiving a diagnosis ASD and/or demonstrating language impairments. Receiving a diagnosis of ASD at 36 months old is predicted by the presence of early fine motor imitation skill deficits that persist from the age of 12 months to 24 months. This result is found when controlling for nonverbal cognitive skill (NVIQ). As well, a positive relationship between fine motor imitation skills without objects and expressive language predicts expressive language abilities when controlling for gesture use and NVIQ at 36 months old. This has immense implications for early identification and intervention for at-risk infants and requires further evaluation.

## **6. Do we really have an Immigration Crisis?**

Presenter: Tommy Hana, Life Sciences

The 21<sup>st</sup> century can be characterized as the century of movement and rapid globalization. This megatrend continues to thrive as political, social, and economic strife progresses across the globe. Not only have we seen mass exoduses from countries plagued with ethno-racial and religious warfare, but rapid urbanization is pulling people out of rural areas and into cities. It is undeniable that the translocation of large ethnic groups into Western countries has instigated tension between Westerners and migrants due to evolutionary predispositions and prejudices towards migrants and refugees, as well as a nation's resource limitations. This poster seeks to examine the history and current trends of migration, using an intersectional analysis on the grounds of Darwinian evolutionary theory.

## **7. Investigating Foot and Ankle Care in North West Canada: Rural Isolation as a Social Determinant of Health.**

Presenter: Giselle Hunt, Life Sciences

Faculty Supporter: Dr. Samuel Alfred Smith, MBChB, MMed (Orth), University of Pretoria; Prince Rupert Regional Hospital

The goal of this project was to explore the effects of rural living on patient health in isolated communities. This was achieved by investigating foot and ankle care in the Canadian North West. By studying the causes and course of treatment for patients who suffer from diabetic foot ulcers in northern rural communities, we were able to expand our knowledge on the effects of isolation as a social determinant of health. In analyzing an orthopedic medical practice in the Prince Rupert Regional Hospital, British Columbia, we were able to focus on the challenges of rural health service delivery with regards to recruitment and retention as well as professional and social seclusion. In addition, this research analyzed the standards and realities of living in non-metropolitan communities in Canada. This report emphasizes that access to health care is a function of distance and unfortunately northern medical

practices in British Columbia suffer from a magnification of limitations and deficiencies found in the Canadian Health care system.

### **8. Prior Exposure to Stress in Adolescence Increases Adult Rats' Anxiety-related Behaviour in the Elevated plus-maze and Alters their Plus-maze Associated c-Fos Profiles in the Lateral Septum.**

Presenter: Katheron Intson, Department of Psychology/Centre for Neuroscience Studies

Faculty Supporter: K Fishman, JL Menard, Department of Psychology/Centre for Neuroscience Studies)

Prior exposure to stress in adolescence increases adult rats' anxiety-related behaviour in the elevated plus-maze and alters their plus-maze associated c-Fos profiles in the lateral septum. Exposure to adversity in adolescence is associated with increased risk for the development of psychopathologies in adulthood, especially those related to anxiety. However, the neural structures mediating these behavioural changes remain relatively unexplored. This study examined the possibility of divergent patterns of neuronal activity in response to stress in adulthood between animals previously exposed to intermittent physical stress (IPS) during adolescence and no-stress controls. Eleven male Long Evans rats were exposed IPS during early adolescence (post-natal day [PD]22-35) and subsequently tested as adults (PD60), along with 10 age- and litter-matched controls in the elevated-plus maze (EPM) to measure anxiety-related behaviour. Two hours after testing, their brains were processed for c-Fos immunoreactivity. The brains of 5 additional IPS rats and 5 age- and litter-matched no-stress home-cage controls (not exposed to behavioural testing) were also processed for c-Fos. As expected, IPS rats displayed higher levels of behavioural fearfulness in the EPM as compared to controls. Surprisingly, these same animals display blunted levels of EPM exposure-induced c-Fos in the lateral septum (a brain region implicated in anxiety). Altered signalling profiles at that site might contribute to the increased sensitivity to acute stress displayed by adult rats with a prior history of stress during adolescence.

### **9. Exploring the Impact of Adjacent Land Use on the Wilderness Character of National Parks in Northern Canada**

Presenter: Courtenay Jacklin

Faculty Supporter: Dr. Ryan Danby

This study investigates the potential for competing land use along the boundaries of national parks in northern Canada to impact the wilderness character of these parks. Information synthesized from park documents was used to summarize the wilderness character of northern national parks and the potential for adjacent development. Using Kluane National Park and Reserve in the southwest Yukon as a case study, a GIS-based approach was used to analyze mineral development and wildlife habitat in the Kluane region, and results of a survey distributed to park visitors provided the foundation for analyzing the importance of the wilderness within the park. Results illustrate that park visitors associate wilderness with ecosystem protection and the preservation of wildlife habitat, and consider the opportunity to encounter untouched nature as the most important value associated with Kluane National Park and Reserve. The majority of critical habitat for wildlife found in the Kluane region, including several species listed as threatened or special concern, is found in the area immediately adjacent to the park. This area also has a high concentration of quartz and placer claims, including a proposed large-scale, open-pit PGM-Ni mining operation. There is potential for increased mineral development in the area to impact

the wilderness character of the park as landscape disturbance increases, compromising wildlife habitat. Other national parks in northern Canada may also face similar challenges. As development in northern Canada increases, the management of land adjacent to national parks will become increasingly important to the preservation of wilderness character within these parks.

## 10. Man's Best Friend...And Why?

Presenter: Dalia Karol, Life Sciences

Many aspects of human behaviour are a result of natural selection. Natural selection is the process in which certain traits that provide benefits to humans, allow humans to parent more children, passing these traits onto more offspring. This process "selects" for certain traits that benefit human survival. Caring for dogs as pets initially seems as though it would hinder a human's ability to survive, as dogs need food, nurturing and time commitment. This may be one of the reasons that no other species in the animal kingdom cares for another species. However, with further investigation, it can be seen that the benefits of owning a dog as a pet outweighs these costs. In the hunter-gatherer days of humans, dogs helped in securing a steady food supply. Now, dogs serve a different role. Simply owning a dog, can increase ones mating success, and it has been directly proven that men are found to be more attractive when with a canine companion. Increased mating success leads to the innate love for dogs being passed onto more progeny. Dogs as pets provide physical and mental health benefits, leading to increased lifespans, resulting in more years to parent children who love dogs. These findings show that the benefits of having dogs as pets outweigh their costs, which is why natural selection favors humans with an innate desire to be dog-owners, and why this trait has been so widely propagated.

## 11. Angiotensin 1-7 Reduces Right Ventricular Hypertrophy and Fibrosis in a Rat Model of monocrotaline Induced Pulmonary Arterial Hypertension

Presenter: Laura Kim, Life Sciences

**Background:** Pulmonary arterial hypertension (PAH), characterized by high pressure in the pulmonary arteries, is fatal due to the development of right ventricular (RV) failure. Angiotensin-1-7 (Ang-(1-7)) is a metabolite of Angiotensin I/II that has beneficial effects on pulmonary vascular remodelling in animal models of PAH. However its effect on RV myocardial remodelling in PAH is unknown.

**Objective:** To study the effects of Ang-(1-7) on RV hypertrophy and fibrosis in an experimental PAH model.

**Methods:** 220 gram Sprague-Dawley rats were randomized to: sham-controls (n=2), monocrotaline (MCT) induced PAH (n=3) and PAH + Ang-1-7 administered via subcutaneous injection for 5-weeks following injection of MCT (n=4). Animals were sacrificed at 5-weeks and the heart harvested for investigation of RV wall thickness and collagen content.

**Results:** RV wall thickness was increased in the MCT-group ( $70.3 \pm 2.3$  pixels vs. sham-controls  $50.42 \pm 2.1$  pixels  $p=0.0001$ ) and decreased towards control values with the addition of Ang-(1-7) ( $52.7 \pm 1.9$ ,  $p=0.0001$  vs. MCT). RV myocardial collagen increased in the MCT-group ( $6.7 \pm 0.8$  % vs. shams  $2.7 \pm 0.2$  %,  $p=0.0001$ ) and decreased with the addition of Ang-(1-7) ( $5.6 \pm 0.2$  %,  $p=0.04$  vs. MCT).

**Conclusions:** Ang-(1-7) reduces development of RV hypertrophy and fibrosis in MCT-induced PAH in rats, despite similar pulmonary arterial pressures. Further study is needed to investigate whether Ang-(1-7) improves RV performance and clinical outcomes in experimental and clinical settings.

## **12. Uncontrolled Cell Division and Migration of Q neuroblasts in Mutant Strains of *C. elegans***

Presenter: Jiunn-Yiing Brandon Lam, Biology

Faculty Supporter: Ian Chin-Sang

Cancer is one of the most prevalent and deadly diseases in today's society, affecting millions of people around the globe. Uncontrolled cell division and migration which are two of the six major hallmarks of cancer have been studied extensively *in vitro*, however *in vivo* these hallmarks are not well understood. We used the *Caenorhabditis elegans* nematode worm as our model organism in order to study these two hallmarks. In unfavorable environmental conditions such as starvation, *C. elegans* can enter a developmental arrest in where certain cell metabolism ceases to continue, this stage is known as L1 arrest. Normally in L1 arrested worms, there are 2 distinct Q neuroblast cells which are precursors of sensory and interneurons that do not divide and migrate. However, when we mutate certain genes, we noticed that the two Q neuroblasts inappropriately divided and migrated, this suggests that we have identified a good model to study uncontrolled cell division and migration. We have already found one gene that when mutated, results in the Q neuroblasts inappropriately dividing and migrating at L1 arrest, now we are looking for other mutated genes that can cause this phenotype, this ultimately allows us to identify new mechanisms that cause an increased risk of cancer.

## **13. Performance and Propriety: Representations of Madame Vestris as Actress and Theatre Manager in 19th-century Print Media**

Presenter: Lorraine Lau, English

Faculty Supporters: Dr. Shannon Smith (BISC), Dr. Shelley King (Queen's)

In 19th-century Britain, women professionally involved in theatre faced a double bind: their popularity depended on the commodification of their bodies, yet their sexual availability excluded them from the propriety of domestic middle-class femininity that Victorian culture valued highly. This project aims to offer insight into how these women negotiated their respectability by examining the career of Lucia Elizabeth Vestris, an actress and theatre manager, through an analysis of contemporary print media. The poster compares Madame Vestris' reputation at the beginning and end of her career in 1820 and 1855 respectively. In particular, I have focused on Vestris' transition from salacious starlet, associated with light comedy and the sexualized breeches' role, to esteemed manager, known for constructing the Lyceum Theatre as a visual spectacle suited for refined audiences. Drawing from a variety of 19th-century London periodicals such as the *Times* and the *Inquirer*, I examine Vestris as understood by a body of mainly middle-class male critics, exploring implications behind their simultaneous attraction to and moral repulsion of young Vestris' sexualized self-presentation, as well as their positive response to her upmarket renovation of the Lyceum as a sign of her respectability. Ultimately, the poster reflects how notions of gender and class heavily shaped the Victorian discourse on theatre: while the actress as a profession was deemed inherently sexualized, women working in the theatre could achieve some degree of social mobility if they packaged their sex appeal as socially acceptable commodities for bourgeois audiences.

## **14. Fashioning an Identity: A Study of Dutch and Flemish Portraits from the Agnes Etherington Art Centre**

Presenter: Madeleine Leisk, Art History

Portraiture developed as a distinct genre of art during the Renaissance in response to the growing interest in humanism. The new humanist ideal placed emphasis on individual human identity and critical thinking. This interest in the individual resulted in the growth of portraiture. During the early development of this genre, portraits were reserved for the elite and commissioned by members of the aristocracy. The high cost and perceived egotism associated with commissioning a portrait meant that it was not a popular or accessible genre of art for the general public during the Renaissance. This stagnant state of portraiture transformed with the economic growth in the Netherlands during the Seventeenth Century often referred to as the Dutch Golden Age. Dutch international trade created a period of economic prosperity during the Seventeenth Century that resulted in a rapidly expanding middle class. Through investments in trade, individuals began amassing wealth and, in turn, status. The rising middle class combined with a shift away from inherited titles and the aristocracy created a unique social position in the Netherlands whereby status was based on financial wealth and the Dutch could fabricate their own identities. My research examines the use of portraits to shape identity through the study of a selection of portraits from the Agnes Etherington Art Centre. These works can tell the viewer about the sitters' public and or perceived private life as well as the society they belonged to through the study of their physical appearance, setting, attributes and stylistic choices.

## **15. Horizontal Violence and the Student Nurse**

Presenter: Julie Mitts; third year BScN, SLC –LU collaborative program, School of Baccalaureate Nursing, St Lawrence College, Kingston campus

Faculty Supporter: Maha Othman

Horizontal violence is the overt or subtle aggression from one colleague to another in a verbal, physical, or emotional manner. Horizontal violence is becoming a growing concern in the nursing profession and several studies have indicated this might be a cause of students leaving the profession. This study aimed to examine St Lawrence College's Bachelor of Science in Nursing (BScN) students' experience/perception of horizontal violence during their clinical practice. The study received ethical clearance from the College's Research Ethics Board and students from all four years of BScN program were invited to participate in a qualitative online questionnaire, administered via the student Learning Management System; Blackboard. Questions addressed students' experiences with horizontal violence, its forms, frequency, suspected reasons and experienced effects. 94 students responded to the survey. 80% of students experienced horizontal violence with years 3 and 4 showing the highest incidences. Of those who experienced violence, 47% did not report the incident. The most common forms of violence were: belittling or undermining work (50%) and destructive criticism (41.5%). The most common effects of violence on students were: stress or illness (63%), fear or embarrassment (57%), poor self-esteem (43%) and thoughts of leaving the program (30%). Suspected reasons of violence were: rite of passage when entering nursing (56%) and desire for power (41%). We conclude horizontal violence has negative impacts on students' overall clinical experience. Collaborative efforts by academic institutions and clinical placement organizations are necessary to strengthen/reinforce the policy of zero tolerance of violence in clinical settings.

## **16. Dressing-Up Victorian Culture: An Interactive Analysis of 1870s Fashion Clothing Featuring the *Young Ladies' Journal***

Presenter: Jenna Mlynaryk

Faculty Supporters: Alvan Bregman (supervisor), Emily Murphy (co supervisor)

Note: J. Mlynaryk's presentation will be displayed on a mobile touch screen.

What does Victorian fashion reveal about the wearer and their cultural identity? As a transitional era defined by the opposition between inherited traditions and modern innovation, the Victorian age is perhaps best represented by its clothing, which embodies a dialogue of shifting social constructs as they relate to the rapid development of mass marketing and consumer culture. The Queen's W.D. Jordan Special Collections Library houses a unique Canadian edition of the *Young Ladies' Journal* published between 1872-1879. The collection of over two hundred items includes illustrated magazines, full-size dress patterns, panoramic fashion plates, and needlework and embroidery design templates. As a whole, the collection occasions my interpretation of progressive Victorian values as conceptualized through the production of women's clothing. When organized in chronological order, the collection foreshadows a reaction against traditional women's roles within the domestic sphere, and also tracks an intriguing disengagement between the rapid development of full dress patterns and the stagnation of innovative needlework designs throughout the decade. These trends illustrate an unprecedented movement in which personal identity becomes a product for mass consumption. The *Young Ladies' Journal* is best valued as digital collection in the form of an interactive gallery and timeline. Digital humanities, a discipline that combines academic research with the possibilities of technology, allows for the collection to be viewed without the constraints presented by the antiquity and size of the original documents, and creates a necessary space for visual correlations between the items to be easily and intuitively formed. Within this medium, Victorian fashion culture is exclusively redefined.

## **17. Workplace Spirituality: The Key to More Productive Employees?**

Presenter: Michelle Rowland, Religious Studies

Faculty Supporter: Dr. Ascough

Workplace spirituality is a field that is gaining more attention, as employees want to be able to bring their spiritual values into the workplace. It allows for employees to feel as though their work is meaningful and be able to nurture their spirituality through their work. We all hunger for a connection that is something larger than ourselves. Workplace spirituality has the capacity to create productive employees, either in cultivating their spirituality productively or working more productively resulting in increased profits. Spirituality is neither about religion nor about getting people to accept a particular belief system. Rather, it is about employees who understand themselves as spiritual beings at work whose souls need nourishment, a sense of purpose and meaning, and a sense of connectedness to one another and their workplace community. This research project discusses how Workplace Spirituality can be beneficial but also has a dark side. Workplace Spirituality can allow employees to know their deepest selves bringing about compassion and non-judgemental acceptance. However, Workplace Spirituality can also manipulate employees into making sense of working longer and harder hours since it helps to cultivate their spirituality. This research project was made possible thanks to the Undergraduate Student Summer Research Fellowship and Dr. Richard Ascough.

## **18. Characterization of the Geochemical Processes and Importance of Groundwater Input at the Confluence of the Apex River in Iqaluit, NU.**

Presenter: Bridget Rusk, Department of Geography and Planning  
Faculty Supporter: Dr. Melissa Lafrenière

The Apex River Watershed in Iqaluit, NU, provides a source of drinking water and recreational use for many local community members. However, the last published study concerning the catchment was in 1986. (Obradovic & Sklash, 1986) The preliminary research conducted by researchers in the Department of Geography in 2013 indicates abnormalities in the stable isotope concentrations of samples collected at confluence of the west and east tributaries from mid to late summer. The composition of the confluence water isotopes cannot be explained by simple mixing of the up valley tributaries, and is hypothesized to indicate the existence of groundwater sourced from melting ground ice. This study is evaluating the river water chemistry for the 2015 summer season. Samples were collected biweekly from four transects at the confluence, as well as weekly bulk water collection from the tributaries, confluence, and near the river outlet. Testing for high ion concentrations helps indicate subsurface flow, as subsurface rock weathering will provide a greater source of mineral ions than atmospherically deposited water at the surface. Based on preliminary results, there is a greater relative abundance of ions such as Cl, NO<sub>2</sub>, SO<sub>4</sub>, NO<sub>3</sub>, Na, and K observed at the confluence transects than at the other river sample sites. Since these ions originate from mineral weathering and salt dissolution, their abundance at the confluence supports the theory of increased melted groundwater inputs at this location as the season progresses. Further analysis will include a characterization of stable isotope values for the summer season to assist in differentiating between surface and ground water sources.

## **19. The Use of Matrix Training to Teach Concurrent Appropriate Actions and Vocalizations during Sociodramatic Play in a Child with Autism**

Presenter: Hayley Sedgwick, Behavioural Psychology, St. Lawrence College  
Faculty Supporter: Gary Bernfeld

Play skills are important for children to develop because they expand social and communicative skills (Lewis, 2003). Children with autism show impaired play skills because of repetitive or stereotypic behaviour (Jung & Sainato, 2013). Matrix training is defined as a generative form of instruction in which targets are organized in a matrix, and it is commonly used to teach communication (Axe & Sainato, 2010). After some skill combinations are taught, other untaught skill combinations within the matrix are tested for generative learning and responding (MacManus et al., 2015). A multiple-probe design was employed to test whether matrix training can teach play actions and language use during sociodramatic play in a 6-year-old boy with autism in an intensive behavioural intervention setting. Scripted actions and vocalizations were each arranged in a two-dimensional matrix and probe data were collected for correct responding with both components of the target play skills. The data showed an increasing trend and after teaching of three target combinations, the participant generalized four of the six alternative untrained combinations for actions and vocalizations. The mean level of acquired combinations was 83.33% by the end of the generalization phase. A visual analysis, using PEM, showed that the use of two parallel matrices was effective to concurrently increase both action and vocalization components of play.

## **20. Deserted Medieval Villages in Sussex, England**

Presenter: Kate Skelton, Art History

Faculty Supporters: Dr. Scott McLean

The topic of the poster which I wish to submit originally served as the subject of a USSRF research fellowship project which I completed during the summer of 2015 at the Bader International Study Centre, under my supervisor Dr. Scott McLean. The poster serves as a condensed summary of a longer essay which I wrote during my time at the BISC. My final poster, entitled "Deserted Medieval Villages in Sussex, England," looks closely at some of the patterns of displacement and resettlement which occurred around the southeastern coast of England during the medieval period. The poster identifies three primary causes of village desertion which were prevalent in this setting: environmental (particularly coastal) change, economic change (i.e. the decline of the salt industry), and social change (from rapid population growth and collapse). I then demonstrate the impact of these themes by more closely analyzing the development and decline of four particular deserted villages within East Sussex: Herste, Hooe, Manxey and Northeye. The ultimate goal of this poster is to consider how the broader issues of environmental, economic and social change influenced human settlement patterns on a more localized scale, and how some of the patterns and differences which are present within such examples may reflect broader themes of life and desertion in medieval English settlements.

## **21. Investigating the Relationship between Seasonal Hydrology and Microbiological Indicators in the Apex River Watershed (Iqaluit, NU)**

Presenter: Gillian Thiel, Environmental Science

Faculty Supporter: Dr. Melissa Lafrenière

Climate change in permafrost regions is projected to alter water resource distribution and have detrimental effects on water quality. Pressured by both population increase and depleting water resources, the City of Iqaluit has designated the Apex River watershed as a Watershed Protection Area with the intent of using it as a supplementary water supply in the future. The aim of this study was to characterize seasonal hydrology and variations in the composition of dissolved organic matter (DOM) and the concentrations of dissolved organic carbon and total dissolved nitrogen (TDN) at four study sites in order to (1) identify water sources and pathways in the Apex River watershed and (2) explore possible relationships with standard microbiological indicators (E. coli, total coliforms). Parallel factor analysis of fluorescence excitation-emission matrices from 2015 samples suggest that Apex River water contains three main components of DOM: two humic-like (ex/em: 250/500nm and 300/450nm) and one tryptophan-like (275/350nm). Elevated DOC concentrations at the beginning of the ice-free season are consistent with snowmelt inputs to the river. Tryptophan-like peaks increasing in strength as the season progresses to baseflow conditions suggest that end-of-season DOM is primarily autochthonous, not derived from overland flow which could introduce microbiological contaminants from surface soils. The results of this study contribute to baseline data which policy-makers can use to understand how climate change affects seasonal hydrology and the repercussions these effects may have on water quality, allowing them to establish policies which ensure the sustainable use of Iqaluit's water resources in the future.



## **22. Perfluorooctane Sulfonate and Perfluorooctanoic Acid as Emerging Contaminants.**

Presenter: Lauren Turner, Department of Geological Sciences and Geological Engineering

Faculty Supporters: Dr. Bernard H. Kueper and Dr. Victoria Remenda

Perfluorooctane sulfonate (PFOS) and perfluorooctanoic acid (PFOA) are perfluorinated carbons (PFCs) with varying applications for surface coatings and surfactants. They were produced in mass quantities before an overwhelming international movement to reduce production and use. As a result of manufacturing and widespread usage, distribution of the compounds in the environment and wildlife is apparent and concerning. PFOS and PFOA are highly persistent in the environment and accumulate in organisms, plants and groundwater. PFOS and PFOA concentrate in blood serum and the liver; the compounds have been noted to have negative biological implications in humans, wildlife and laboratory treated animals. Identified as emerging contaminants worldwide, governments and organizations including Environment and Climate Change Canada, The United States Environmental Protection Agency, The European Food Safety Authority and United Nations Environmental Programme agree effects are detrimental to human and environmental health. Remediation strategies are currently being studied and developed to identify possible technologies for full scale economical implementation. The presentation encompasses the physico-chemical properties, partitioning, transport behaviour, health effects and current remediation technologies relevant to PFOS and PFOA groundwater contamination.

## **23. Potential Nitric Oxide Treatment for Alleviating Muscle Atrophy in Hindlimb-Suspended Mice**

Presenter: Antonia Zhu, Life Sciences

Muscle atrophy is a debilitating condition that results from muscle disuse and aging. It is often experienced by people who are sedentary or elderly and cannot be effectively treated or prevented. Since nitric oxide (NO) activates muscle stem cells, this study aimed to test the hypothesis that treatment with a NO-donor drug, isosorbide dinitrate, during hindlimb suspension for 18 days, can alleviate muscle atrophy. Muscles in unloaded lower and weight-bearing upper limbs were weighed to study muscle loss. Western blots were used to measure protein levels in experimental (suspended and treated-suspended) and age-matched control groups of young (3 weeks old) and adult (6-8 weeks old) mice. Protein levels of atrogin-1, myostatin, and myosin heavy chain isoforms were analyzed (relative to  $\beta$ -actin) for changes expected with muscle atrophy. Analysis of variance was used to determine if changes were statistically significant. The weight of unloaded muscles (quadriceps and soleus) in NO-treated-suspended mice tended to increase towards that of the control mice, compared to the atrophy after suspension without treatment. In the same muscles of young and adult suspended mice, NO treatment decreased atrogin-1, a negative regulator of muscle mass ( $p < 0.05$  for quadriceps). A precursor protein of myostatin, an inhibitor of myogenesis, showed the same trend. Results suggest that NO treatment has the potential to attenuate muscle-disuse atrophy, with possible significance to preventing atrophy with aging or space travel. This research is supported by the University of Manitoba Research Grant Program (JEA) and NSERC Undergraduate Student Research Award (AZ).

## **24. Soldier or Artist? An Investigation into the Possible Roman Origins of Footprint Petroglyphs from Humayma**

Presenter: Ally Zmijowskyj, Classics

Faculty Supporter: Dr. B. Reeves

The archaeological site of Humayma in southern Jordan contains traces of human occupation spanning the Neolithic period through to the present day, with major occupation associated with the Nabatean, Roman, Byzantine and early Islamic settlements dating from the 1st century BC to the 8th century AD. Petroglyphs of feet carved into the sandstone landmasses next to the site could conceivably be associated with any of these population groups. The goal of this study is to investigate the possibility that some may have been carved by soldiers of the Roman garrison who were stationed at Humayma from the early 2nd C AD to the early 5th C AD. Specific aspects of Humayma's foot petroglyphs (e.g. shape, dimensions, details) will be compared to published descriptions of Roman military footwear and to depictions in Roman art to determine the likelihood that Roman soldiers garrisoned at Humayma created these carvings. Further comparison of the nature and context of these carvings against other depictions of shoes, bare feet, footprints in Roman art may establish motives behind the creation of these petroglyphs. The findings as to whether or not support the theory that Roman soldiers likely created these petroglyphs will provide important information for understanding the activities of Humayma's soldiers and the identity of those carving foot petroglyphs at Humayma and in the surrounding region.

## **RELS 202 Course Specific Poster Project: *Magic, Witchcraft, and the Supernatural***

Faculty Supporter: Dr. Sharday Mosurinjohn

In RELS 202: *Magic, Witchcraft, and the Supernatural*, we are trying to understand these concepts in the contemporary context by studying "New Religious Movements" like Satanism, revivals of ancient traditions like Neo-Paganism, and the ways in which such often misunderstood religions have had their symbols appropriated as entertainment commodities, as with, for instance, the figure of the zombie whose apocryphal origins are in Vodou. To do so, we're studying practices and beliefs, as you might expect, but since what does and doesn't count as "magic" as compared to "religion" as compared to "cult" is a matter of social construction, we spend a lot of our time looking at such groups in a variety of contexts. We consider them in the contexts of popular culture, cultural institutions like the museum, social institutions like law, and with respect to the politics of public knowledge – all with recognition of the way these contexts increasingly appear through digital mediation. We are asking critical questions about traditions both old and new that have stirred our own curiosity and led to this set of posters. As the major work of our semester, they bring all of our learning outcomes to life – naming key issues in the field today; applying course material to theorize course themes in popular culture and social life; adding knowledge to the public domain, and practicing scholarly writing, presentation, and conversation skills. It is the latter, however that many of us are looking forward to most during Inquiry@Queen's, because what satisfies curiosity-driven research is good conversation. Far from just trading factoids, we hope this will be a time to build perspectives based on the knowledge we all bring into the library as a space of inquiry.

**Group 1: Taylor Kalamut, Derek Oxley, Ethan Wright, Alex Armitage**  
**Monetizing the False Face**

Our poster explores the production and sale of the False Face Society masks within the Iroquois and Mohawk communities. These sacred masks are used to store power that can be used to avert natural disasters, dispel harmful spirits, and cure illness; however, these masks are strictly *only* to be used by those within the False Face Society for their intended purpose. Although the ritualized aspects of the False Face Society are important, it is the masks themselves that are believed to hold the power invested in them during their creation process. Oftentimes they are understood to contain a spirit. It is, therefore, extremely problematic when tribal members who are not part of the False Face Society, or non-Indigenous people, produce or distribute these sacred masks for commercial use. This poster begins by explaining the history of the False Face Society and its rituals, and then analyzes the commercialization of the False Face Society's sacred masks and subsequent issues that arise for the culture that they belong to.

**Group 2: Emily Halprin, Kimberly Keller, Alyssa Macgregor, Jessica Paoletti, Geoffrey Soo & Meaghan Vanderwater**  
**Problematic Implications for Sexual Ethics in Love Magic**

This poster compares the ethics of love magic in Pagan New Religious Movements and in popular culture, and their mutual influence on navigating inherent issues of consent. Erotic love spells often take the form of *agoge*,<sup>1</sup> which is a type of spell that compels victims into relationships with the agent who casts it. Casters of this type of spell exploit the free will of victims to initiate relationships. Contemporary progressive attitudes toward sexual ethics have given this kind of love magic a negative connotation by conceptualizing it as non-consensual sex or assault. The concern among Neopagan magic users for consent in sexual relationships means that love magic is increasingly seen as "accursed"<sup>2</sup> by practitioners of magic, and for them its use symbolizes the creation of victims. Neopagans believe that love spells are dangerous to both parties involved as they produce obsession rather than affectionate love. Neopaganism therefore discourages magical manipulation of another person's agency by assigning negative returns to the morally offending agent.<sup>3</sup> This poster explores the intersection of Neopagan sexual ethics and sexual ethics in popular culture by comparing the use of erotic love spells among Neopagans and the representation of love magic in J.K. Rowling's *Harry Potter and the Half-Blood Prince*.

<sup>1</sup> Christopher A. Faraone, *Ancient Greek Love Magic* (Cambridge: Harvard University Press, 1999), 91.

<sup>2</sup> Christopher A. Faraone, "When Spells Worked Magic." *Archaeology* 56.2 (2003): 48. *Academic Search Complete*. Web. 31 Jan. 2016.

<sup>3</sup> Sabrina Magliocco, "Neopaganism." In *The Cambridge Companion to New Religious Movements*, ed. Olav Hammer and Mikael Rothstein (Cambridge: Cambridge University Press, 2012), 150-66.

**Group 3: Sarah Dennie, Natali Juriansz, Emma Roberts, Michelle Lee, Taylor Wormington**  
**Magic vs. Morality: Christian Fundamentalist Responses to *Harry Potter***

This poster will explore the moral panic arising from Christian fundamentalist interpretations of the popular book series *Harry Potter* in the United States during the late 1990's to the present day. After

giving an account of what Christian fundamentalism is, we draw on the scholarship of religion and popular culture to conceptualize fundamentalists' anxieties about the effect *Harry Potter* would have on their children. Research shows that some Christian fundamentalists believe that the *Harry Potter* series presents the occult as exciting and moral, which leads children astray from Christian values (eg. Soulliere 2010). In order to explain these results, we address the relationship between Christian fundamentalists, magic, and witchcraft. We focus on explaining how negative perceptions of witchcraft have coloured fundamentalists' reception of the novel as a threat to their understanding of the Christian faith.

Soulliere, Danielle M. "Much Ado About Harry: Harry Potter and the Creation of a Moral Panic." *Journal of Religion and Popular Culture* 22:1 (2010): 1-37.

**Group 4:** Chelsea Bisson, Emma Funnell-Kononuk, Samantha Hurley, Andrew Kerrick, Melissa Minken, Morgan Pockett

### **Gendering Wicca: The Sexualization of the Modern Witch**

Wicca is often perceived as a sexually perverse cult. Its focus on human sexuality is frequently misattributed to an obsession with sex and unsafe practices. In Western culture particularly, Wicca has a negative connotation attached to the figure of the witch. Scholars have argued that one of the motivations behind the historical persecution of women as witches has been to control female sexual power, including reproductive labour. Today, the association between the figure of the and illicit female sexuality continues to be played out in media and even Halloween costumes. Contrary to these misconceptions, Wiccans view sexuality as a component of their celebration of life and fertility. Sexuality is not taken lightly; in fact it is understood as something sacred. Sexuality is used to understand the interconnectedness of all beings and to harness power. This paper explores the Wiccan practices known as The Great Rite and Skyclad, to explain how Wiccan beliefs and practices about sexuality are important components of their religiosity.

**Group 5:** Sevly Chea, Trevor Hoff, Dominique Holmes, Michelle MacLean, Lena MacNicholas, Aaron Tang

### **The "Cult Classic" *Fight Club* as New Religious Movement**

In his book *Film as Religion* John Lyden (2003) argues that "what we have always called 'religion' is identified by its function in society, and that this function can be met even by cultural phenomena not normally called 'religions,' including film (3). In this poster we explore the concept of the "cult classic" – a film with a devoted subcultural following – in relation to the concept of New Religious Movements, a term that academics have substituted in scholarship for the pejorative term "cult." While literature on NRMs includes such "hyperreal" NRMs as those based on movies (Jediism being based on *Star Wars*, Dudeism being based on *The Big Lebowski*, and Matrixism being based on *The Matrix*), we seek to explore whether the "cult following" of *Fight Club*, which does not self-understand as an "ism" of any kind, might nonetheless be understood with respect to the concept of NRMs. By combining analysis of the film itself with evidence about the kind of influence attributable to "cult classics" and analysis of what constitutes a New Religious Movement in scholarship today, we hope to show that conceptualizing *Fight Club's* "cult" following as an NRM offers analytical purchase on its influence and attraction.

**Group 6: Melissa Naami, Marnie Myszko, Stephanie Nijhuis, Martin Kulinich, Madison Worth**  
**Satanism**

This poster will discuss the origins of Satanism by looking at the beliefs and intentions of its founder, Anton LaVey, who founded the Church of Satan in San Francisco in 1966. Two types of Satanism that developed from these origins will be compared: Rational Satanism and Esoteric Satanism. This poster will contextualize these movements by drawing on contemporary religious studies sources that highlight Satanism as a reaction to modernity. It will also consider the negative cultural connotations attached to being a Satanist. Consistent with the scholarly literature, this poster argues that due to these negative connotations, Satanism is usually not viewed as a religion but rather a 'cult,' a term which carries its own negative connotations. These connotations are explained with reference to the history of the early 20th C Christian counter-cult movement and the mid-20<sup>th</sup> C secular anti-cult movement. This poster looks to relate the beliefs and practices of both branches of Satanism to those commonly associated with major world religions. In doing so, it seeks to broaden the audience's understanding of what Satanism is and what beliefs and practices Satanists are committed to.

**Bibliography**

Dyrendal, Asbjorn, James R. Lewis, and Jesper Aa. Petersen. *The Invention of Satanism*. New York: Oxford University Press, 2015.

Faxneld, Per, and Jesper Aa. Petersen, eds. *The Devil's Party: Satanism in Modernity*. New York: Oxford University Press, 2012.

Garces-Foley, Kathleen. *Crossing the Ethnic Divide: The Multiethnic Church on a Mission*. New York: Oxford University Press, 2007.

**Group 7: Taylor Seguin, Bethany Wong, Aimee Bertin, Adam Szczuczko, Jayme Grieco-Hogg, Kaitie Kawzenuk**  
**Necromancy in Popular Culture**

The practice of necromancy (communication with the dead) as a form of divination is in no way a new phenomenon, having been present in countless ancient religions, and its use recorded in such early works as Homer's *Odyssey*. However, the early 1800s saw the new movement of modern spiritualism in North America and Britain, and with it, an increasing desire to try one's hand at communicating beyond the grave. This led to the invasion of necromancy into pop culture, as an entertainment fad that we still see today with games like the Ouija Board. This poster will examine how necromancy has been altered from a simple communication with ancestors to a marketable entertainment through mediums such as film, fiction, and games. Since the origins and development of necromancy practices are extensive and widespread, our research will focus primarily on its occurrence in The United States and Canada. We will compare and contrast ancient rituals, spiritualist practices, and contemporary representation of necromancy in entertainment media to explain the prevalence of necromancy today.

**Group 8:** Olivia Campbell, Samantha Matti, Segen Mehreteab, Nadisha Mendes, Lisa Namey, Lyndsy Traynor

### **Romanticizing the Salem Witch Trials in Popular Culture**

This poster contrasts representations of the Salem Witch Trials in TV shows and movies with scholarly accounts to demonstrate that Salem has been romanticized in popular culture. The Trials occurred during the period between 1692 and 1693 in Salem, Colonial Massachusetts. Nineteen people convicted of witchcraft (fourteen women; five men) were hung on Salem's Gallows Hill after proceedings in which historians claim that the standard of evidence was not up to par with that for other crimes. Historical research also reveals that it was after a local doctor had diagnosed two teenage girls as suffering from the effects of witchcraft that they and other Salem residents with similar symptoms – contortions, hallucinations, spasms, vomiting, choking, and screaming – started to point fingers at suspected "witches." It had long been known that group tensions were exacerbated at the time by the smallpox epidemic and conflicts with Indigenous populations. But in 1976, a scientific study found that the fungus Ergot found in rye, wheat, and other cereals produces those same symptoms. It therefore became all the more apparent that people in Salem had scapegoated the accused because of their own personal grudges against them, and because they were misfits in the community. This poster compares and contrasts documented accounts of the trials with corresponding depictions in popular culture. Drawing on religious studies scholarship of witchcraft and the relationship between magic and religion in modernity, we analyze why popular representations of the Salem Witch Trials are so farfetched from the actual events.

**Group 9:** Nadia Larocca, Elizabeth Sheppard, Kate Kaplya, Julian Thompson and Megan Kirby

### **Grab Your Broomstick: Let's Talk about Wicca**

This poster will examine the misconceptions and commercialization of the beliefs and practices of Wicca, a contemporary Pagan religion. It begins by investigating the history of Wicca and its evolution into contemporary forms. It moves on to examine how depictions of witches in popular culture (especially contrasting depictions in the TV shows *Sabrina the Teenage Witch* and *American Horror Story: Coven*) have impacted Wicca, including who joins, what symbols and products they use or avoid, and what stereotypes – especially ones about dangerous sexuality – Wiccans must contend with. It also considers how Pagan rituals acknowledged by some Wiccans have become embedded in contemporary society, for instance Halloween. Our analysis draws on scholarship that addresses how the commercialization of witches and witchcraft has been beneficial or harmful for Wicca; whether the popularity of witches in entertainment has eliminated prejudices about Wiccan practices, or instead led to what Wiccans see as the deterioration of the tradition's authenticity.

**Group 10:** Amy Hetherington, Jessica Campbell, Taryn Zeger, Kira Liu, Whitney Gray  
**The Truth behind Harry Potter's Magic: An Analysis of the Commodification of Witchcraft**

This poster explores the ways in which the *Harry Potter* franchise commodifies witchcraft practices and the result this has on the public's understanding of the contemporary Pagan religion of Wicca, some of whose practitioners understand themselves to be witches and magic users. Specifically, we consider how the tradition of Wicca gets conflated with witchcraft in general.

**Group 11:** Julie Fiocca, Andres Caravantes, Cooper Chasse, Chelsea Saunders, Renee Martin

### **Wiccan Rituals of Death and Dying**

This poster explores Wiccan rituals of death and dying. We highlight differences and similarities between Wiccan death practices and the Christian practices that have informed mainstream Western culture. In doing so, we address prejudices against Wicca as an evil “cult” that uses “black magic” and draw on scholarship (Bado-Fralick 2002; Lozano & Foltz 1990), that instead conceptualizes Wicca as an earth-based and social-justice-oriented New Religious Movement with its own unique ways of celebrating life and death.

Bado-Fralick, Nikki. 2002. Mapping the Wiccan ritual landscape: Circles of transformation. *Folklore Forum* 33 (1-2): 45-65.

Lozano, Wendy G., and Tanice G. Foltz. 1990. Into the Darkness: An Ethnographic Study of Witchcraft and Death. *Qualitative Sociology* 13 (3): 211-34.

**Group 12:** Adrian Deveau, Kaitlyn Barton, Connor Mank, Kathleen McDougald, Ben Simms

### **Magic and Modernity: Wicca as Feminist and Environmental Activism**

As an earth-centred Pagan religion, Wicca involves manipulation of natural elements to provide an outcome based on the practitioner’s intentions. Given the importance of the natural environment to Wicca, its practitioners have often been at the forefront of environmental activism. Wiccans have also been a strong presence in eco-feminist and other feminist movements because Wiccans tend to see themselves as part of the same lineage of witchcraft that saw thousands of people, especially women, ostracized, tortured, and killed during the Salem witch trials and other persecutions. In contrast to what they see as heteropatriarchal ideologies like Christianity that fear women’s sexuality and devalue their work, Wiccans valorize women and “femininity.” In the 20<sup>th</sup> century West, Wiccans, who tend to take this “path” as teenagers and middle-aged individuals, continue to fight stereotypes of Wicca as “evil” (often confused, as it is, with Satanism) and to fight stereotypes of powerful women as “witchy” – especially as women’s power relates to their sexuality. This poster seeks to contextualize contemporary Wicca as a response to gender and environmental injustices by drawing on scholarship of Wicca, in particular, and New Religious Movements, more broadly.

**Group 13:** Helen Li, Adam Husain, Caitie Annear, Kristy Finkle, Bradley Haworth, Sophia Ukani

### **Is the Zombie Apocalypse Trying to Tell Us Something More?**

In Vodou tradition, the concept of zombism was connected to fears about unnatural death and the vulnerability of the soul. It acted as a spiritual metaphor for hard lives that lacked agency or social acknowledgement. Though not a central belief in Vodou, it gained pertinence as the European slave trade that decimated African populations spread stories about “voodoo” among settler culture. Later, American entertainment culture sunk its teeth in: early cinema and pop literature created the grotesque figure of the Zombie, a violent, racially coded sub-human that reflected white fears of “reverse

colonization"<sup>1</sup> (think films like *White Zombie* [1932] or *Voodoo Man* [1944]). This poster will explore how the sociopolitical connotations of zombies changed in the latter part of the 20<sup>th</sup> century, when fears about racial Others were matched by fears about what we could create ourselves. Zombies became vehicles for speculative fiction about disease, overpopulation, and human interference in genetic science - and how it would lead to our downfall.<sup>2</sup> Movies like *28 Days Later* and *World War Z* present zombism as a pandemic, and the actions taken by the imaginary government are akin to those in real-life crises such as H1N1 or the 'bird flu' of the early 2000's. This poster will show that the modern zombie apocalypse is less about flesh-eating monsters and more about late modern fears over how long and how well we can sustain globalization.

<sup>1</sup>Scott, Niall. *Monsters and the Monstrous: Myths and Metaphors of Enduring Evil* (Amsterdam: Rodopi, 2007), 45.

<sup>2</sup>McGee, Adam M. "Haitian Vodou and Voodoo: Imagined Religion and Popular Culture." *Studies in Religion* 41:231 (2012): 243.

**Group 14:** Olivia Dumas, Jenna Mowbray, Kerry O'Shea, Donovan Gopaul, Dorothy-Jean Evans

### **Satanic Ritual Abuse**

The 1980s witnessed a growing concern that organized Satanic cults were committing atrocities across the United States. This fear was reinforced by several allegations of child abuse, of which the McMartin preschool trial was a particularly bizarre example. The California preschool was investigated and charged with several acts of child sexual abuse, supposedly related to a Satanist cult in which the McMartin family was active. The 1966 founding of the Church of Satan and other Satanist-identified groups gave some credence to reports of such "cults," yet research reveals few if any links between public fears and actual Satanist practices. The growth of Satanic groups also coincided with the rise of fundamentalist Christianity, which saw the Moral Majority as a prominent force in American society. This project seeks to analyze the cultural factors that contributed to the "Satanic Panic," with emphasis on how the combined efforts of the religious right, psychotherapists, law enforcement, and the media's uncritical coverage of spurious stories all contributed to the credibility and promotion of cultural anxieties. The panic is also contextualized more broadly in the era's newfound public awareness of child abuse and in the growth of New Religious Movements. We argue that the cultural anxieties plaguing American society's vulnerabilities to evil forces are embodied in the moral panic surrounding Satanic ritual abuse; indeed, it appears people may have invented supernatural antagonists to rationalize a genuinely disturbing issue - child abuse - and in order to literally demonize non-Christian members of society.

**Group 15:** Candice Pinto, Erica Gordon, Ardita Sinoimeri, and Maddie Vloet

### **Mystic Mischief: Banned Books in Classrooms**

This poster will look at children's literature that has been banned from schools due to themes of magic, witchcraft, or mysticism. We will be looking at four different popular children's novels, and dissecting the reasons behind their prohibition. These include: C. S. Lewis' (1950) *The Lion, the Witch and the Wardrobe*, which, although it has never been banned, has been challenged by numerous public schools, religious communities and public libraries, as its main character, the lion Aslan, can be interpreted as a Christ-like figure. The novel *The Witches* by Roald Dahl, another celebrated children's author, has, however, been banned due to its glamorization of witchcraft, as well its misogynistic views. We draw on scholarship on magic and modernity (eg. Randall Styers 2004) to contextualize the fear over magic and mysticism in relation to "legitimate religion" and with respect to the supposed moral vulnerability of children.



Styers, Randall. 2004. *Making Magic: Religion, Magic, and Science in the Modern World*. New York: Oxford University Press.

**Group 16: Annika Spence, Allison Rizzo, Gracie Foulon, Matthew Gwillam**  
**Artifacts out of Context**

This poster considers the life of ritual objects once they are no longer used in spiritual and religious ceremonies, such as when they are accessioned into a museum as an artefact or art object. We focus on collections of African objects and how they are presented with the aid of didactic panels, audio guides and literature. We draw on museological scholarship on shifting perceptions of what institutions perceive themselves to be preserving – the physical object, spiritual meaning, ritual efficacy, etc. – and we also draw on religious studies scholarship to explore issues arising over the display of objects for audiences who do not practice or understand the religions they are associated with.

## **ALPHABETICAL LIST OF PRESENTERS**

|                           |                   |
|---------------------------|-------------------|
| Aarssen, Jonathan         | Session XI        |
| Anderson, Morgan          | Session IX        |
| Annear, Caitie            | RELS 202 Group 13 |
| Armitage, Alex            | RELS 202 Group 1  |
| Baptista, Jessica         | Session IV        |
| Barton, Kaitlyn           | RELS 202 Group 12 |
| Baum, Zachary             | Session XIII      |
| Bertin, Aimee             | RELS 202 Group 7  |
| Bisson, Chelsea           | RELS 202 Group 4  |
| Bramwell, Ashley          | Session VI        |
| Brown, Luke               | Session IV        |
| Campbell, Jessica         | RELS 202 Group 10 |
| Campbell, Olivia          | RELS 202 Group 8  |
| Caravantes, Andres        | RELS 202 Group 11 |
| Carmona, Nicole           | Session XI        |
| Chan, Rachel              | Session II        |
| Chasse, Cooper            | RELS 202 Group 11 |
| Chea, Sevely              | RELS 202 Group 5  |
| Chow, Holly               | Session XI        |
| Covall, Karly             | Session XI        |
| Crawford, Sasha           | Session VIII      |
| D'Angelo, Nicole          | Session IV        |
| Dawan, Neal               | Session IX        |
| Dennie, Sarah             | RELS 202 Group 3  |
| Deveau, Adrian            | RELS 202 Group 12 |
| Dumas, Olivia             | RELS 202 Group 14 |
| Evans, Dorothy-Jean       | RELS 202 Group 14 |
| Fielding, Jackson         | Session VIII      |
| Finkle, Kristy            | RELS 202 Group 13 |
| Fiocca, Julia             | RELS 202 Group 11 |
| Foulon, Gracie            | RELS 202 Group 16 |
| Funnell-Kononuk, Emma Lee | RELS 202 Group 4  |
| Gopaul, Donovan           | RELS 202 Group 14 |
| Gordon, Erika             | RELS 202 Group 15 |
| Gray, Whitney             | RELS 202 Group 10 |
| Grieco-Hogg, Jayme        | RELS 202 Group 7  |
| Gudgeon, Isabella         | Session XII       |
| Gwillam, Matthew          | RELS 202 Group 16 |
| Halprin, Emily            | RELS 202 Group 2  |
| Hana, Tommy               | Session XI        |

|                     |                   |
|---------------------|-------------------|
| Hanson, Madeline    | Session IX        |
| Haworth, Bradley    | RELS 202 Group 13 |
| Hetherington, Amy   | RELS 202 Group 10 |
| Hoff, Trevor        | RELS 202 Group 5  |
| Holmes, Dominique   | RELS 202 Group 5  |
| Hudson, Rebecca     | Session XIII      |
| Hunt, Giselle       | Session XI        |
| Hurley, Samantha    | RELS 202 Group 4  |
| Husain, Adam        | RELS 202 Group 13 |
| Intson, Katheron    | Session XI        |
| Iqbal, Kisa         | Session VI        |
| Jacklin, Courtenay  | Session XI        |
| Jones, Kristen      | Session XII       |
| Jopling, Ellen      | Session VI        |
| Juriansz, Natali    | RELS 202 Group 3  |
| Kalamut, Taylor     | RELS 202 Group 1  |
| Kaplya, Kate        | RELS 202 Group 9  |
| Karol, Dalia        | Session XI        |
| Kawzenuk, Kaitie    | RELS 202 Group 7  |
| Keller, Kimberly    | RELS 202 Group 2  |
| Kerrick, Andrew     | RELS 202 Group 4  |
| Kim, Laura          | Session XI        |
| King, Katie         | Session XII       |
| Kirby, Megan        | RELS 202 Group 9  |
| Kuipers, Samantha   | Session IX        |
| Kulinich, Martin    | RELS 202 Group 6  |
| Lam, Brandon        | Session XI        |
| Larocca, Nadia      | RELS 202 Group 9  |
| Lau, Lorraine       | Session XI        |
| Lee, Michelle       | RELS 202 Group 3  |
| Leisk, Madeleine    | Session XII       |
| Lewis, Emily        | Session III       |
| Li, Helen           | RELS 202 Group 13 |
| Lightle, Maddy      | Session II        |
| Liu, Kira           | RELS 202 Group 10 |
| Luchenski, Lauren   | Session IV        |
| Macgregor, Alyssa   | RELS 202 Group 2  |
| MacLean, Michelle   | RELS 202 Group 5  |
| MacNicholas, Lena   | RELS 202 Group 5  |
| Mank, Connor        | RELS 202 Group 12 |
| Marrs, Sean Patrick | Session XII       |

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|-----------------------|-------------------|
| Martin, Renee         | RELS 202 Group 11 |
| Matti, Samantha       | RELS 202 Group 8  |
| McDougald, Kathleen   | RELS 202 Group 12 |
| Meadows, Lucas        | Session VIII      |
| Mehreteab, Segen      | RELS 202 Group 8  |
| Mendes, Nadisha       | RELS 202 Group 8  |
| Meng, Xiangtao        | Session IV        |
| Minielly, Rebecca     | Session I         |
| Minken, Melissa       | RELS 202 Group 4  |
| Mlynaryk, Jenna       | Session XI        |
| Monette, Marissa      | Session XIII      |
| Moore, Brittany       | Session VIII      |
| Mowbray, Jamie        | Session III       |
| Mowbray, Jenna        | RELS 202 Group 14 |
| Murray, Allison       | Session V         |
| Myszko, Marnie        | RELS 202 Group 6  |
| Naami, Melissa        | RELS 202 Group 6  |
| Namey, Lisa           | RELS 202 Group 8  |
| Nijhuis, Stephanie    | RELS 202 Group 6  |
| Onel, Tyli            | Session VIII      |
| Ong, Vanessa          | Session II        |
| Orr, David            | Session V         |
| O'Shea, Kerry         | RELS 202 Group 14 |
| Oxley, Derek          | RELS 202 Group 1  |
| Paoletti, Jessica     | RELS 202 Group 2  |
| Petrie, Casey         | Session VI        |
| Pinto, Candice        | RELS 202 Group 15 |
| Price, Sean           | Session III       |
| Raimondo, Kaila       | Session V         |
| Rey, Alexander        | Session I         |
| Rizzo, Allison        | RELS 202 Group 16 |
| Roberts, Emma         | RELS 202 Group 3  |
| Robertson, Megan      | Session IV        |
| Rowe, Ellen           | Session V         |
| Rowland, Michelle     | Session XI        |
| Rusk, Bridget         | Session IX        |
| Russell, Samantha     | Session V         |
| Saunders, Chelsea     | RELS 202 Group 11 |
| Scott, Brittany       | Session II        |
| Scott, Michael        | Session V         |
| Sedgwick-Pinn, Hayley | Session XI        |

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|----------------------|-------------------|
| Seguin, Taylor       | RELS 202 Group 7  |
| Sheppard, Elizabeth  | RELS 202 Group 9  |
| Simms, Ben           | RELS 202 Group 12 |
| Sinoimeri, Ardita    | RELS 202 Group 15 |
| Sistoso, Kathryn     | Session II        |
| Skelton, Kate        | Session IX        |
| Smail, Lauren        | Session VII       |
| Smith, Shaughnelene  | Session XIII      |
| Soo, Geoffrey        | RELS 202 Group 2  |
| Spence, Annika       | RELS 202 Group 16 |
| Stansfield, Kaitlin  | Session I         |
| Stratford, Phyllis   | Session VIII      |
| Swan, Benjamin       | Session V         |
| Szczuczko, Adam      | RELS 202 Group 7  |
| Tang, Aaron          | RELS 202 Group 5  |
| Thiel, Gillian       | Session XI        |
| Thompson, Julian     | RELS 202 Group 9  |
| Thomsen, Corrina     | Session I         |
| Tom, Mai-Jan         | Session X         |
| Traynor, Lyndsy      | RELS 202 Group 8  |
| Treissman, Caleigh   | Session X         |
| Turner, Lauren       | Session XI        |
| Twardek, William     | Session VII       |
| Ukanie, Sophia       | RELS 202 Group 13 |
| Usyatynsky, Sasha    | Session X         |
| Vanderwater, Meaghan | RELS 202 Group 2  |
| Vanner, Stephanie    | Session XIII      |
| Vig, Anjali          | Session VII       |
| Vloet, Maddie        | RELS 202 Group 15 |
| Weaver, Nicolle      | Session V         |
| Williams, Jennifer   | Session X         |
| Wong, Bethany        | RELS 202 Group 7  |
| Wormington, Taylor   | RELS 202 Group 3  |
| Worth, Madison       | RELS 202 Group 6  |
| Wright, Ethan        | RELS 202 Group 1  |
| Yang, Cecilia        | Session II        |
| Zeger, Taryn         | RELS 202 Group 10 |
| Zemanek, Debrah      | Session I         |
| Zhu, Antonia         | Session XI        |
| Zmijowskyj, Ally     | Session XI        |