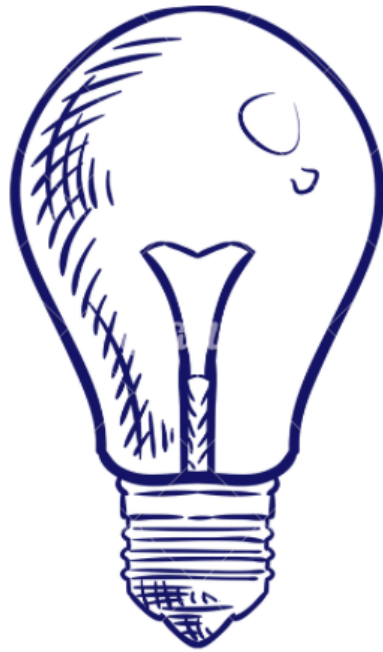


GSA / AEES



SYMPOSIUM

GRADUATE RESEARCH 2022 /
RECHERCHE DES DIPLÔMÉS
2022

MONDAY MARCH 21, 2022 / LUNDI 21 MARS 2022

9:30 - 9:35 am - Host 1 : Ophelia O'Donnell

SESSION 1 / SÉANCE 1

Faculty of Education and Health / Faculté d'éducation et de la santé

9:35 - 9:55 AM - Liam Nesbit (M.K. Human Kinetics)

Examining Factors in Presenteeism and Absenteeism

Canadian companies are estimated to lose \$16 billion in work productivity per year because of mental health-related absenteeism (Mental Health Commission of Canada, 2015a; Mercer, 2018). This already substantial figure is of course higher when adding time lost due to physical health issues. In Canada, it is estimated that approximately 2 out of every 9 workers suffer from a mental illness that affects their work productivity (Smetanin, Stiff, Briante, Adair, Ahmad, & Khan, 2011). Impacts on work productivity are commonly reflected in rates of absenteeism and presenteeism. Absenteeism refers to missing work while presenteeism refers to attending work despite the inability to perform tasks due to some type of incapacitation (Bierla, Huver & Richard, 2013). This study uses data obtained from the Mining Mental Health Study (Larivière & Hanson, 2019) to better understand this issue in a mining population. Regression modeling will be used to identify variables that predict instances of a mental health related absence, a physical health related absence, or presenteeism. The results of this study may assist with intervention strategies to reduce rates of absenteeism and presenteeism in this population of workers. This may in turn increase work productivity and lessen the health and financial burdens associated with these issues.

9:55 - 10:15 AM - Samaneh Abedini (Ph.D. Rural and Northern Health)

Exploring the Suitability and Benefits of Two Different Mindfulness-Based Interventions with Marginalized Female Youth

The transition from adolescence into adulthood involves many changes that result in increased vulnerability to psychological challenges. This developmental stage can be especially stressful for female youth living in underserved regions. If mental health problems are left untreated in socially marginalized youth, these challenges can extend into adulthood. We know that a lack of access to mental health services and support can influence adolescents' psycho-social development and well-being, while resilience and emotion regulation can help them cope with these challenges. Feasible therapeutic programs can play a significant role in assisting youth to develop these characteristics and skills. Mindfulness-Based Cognitive Therapy for Children (MBCT-C) and Holistic Art-Based Program (HAP) are two examples of mindfulness-based interventions (MBIs) that address emotion regulation, coping strategies, and resilience in marginalized youth. While each program's beneficial effects have been documented, there is a lack of research comparing MBIs with youth, within underserved geographical locations, and across different cultures. In this study, the sample is 80 female youth between the ages of 12 and 17 years from two underserved regions in northeastern Ontario and Iran. In northeastern Ontario,



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40 participants seeking mental health services will be recruited. In addition, 40 female youth from the Elm o Honar high school located in rural parts of Iran's Isfahan province will be enrolled in the study. The participants will be assigned to one of the MBIs. A mixed-method approach will be used to assess resilience and emotion regulation as well as improvement in mindfulness. Repeated measure ANOVAs will be used to interpret quantitative data; interviews will be audio-taped, transcribed, and coded for key themes using reflexive thematic analysis. The data will be collected in pre-and post-intervention and two months following the intervention

10:15 - 10:35 AM - Taylor Watkins (M.A. Interdisciplinary Health)

Supporting Healthy Pregnancies: Understanding Pregnant Women and New Mothers' Perspectives Regarding Fetal Alcohol Spectrum Disorder Campaigns to Inform Effective and Non-Stigmatizing Prevention Approaches in Northeastern Ontario

Fetal Alcohol Spectrum Disorder (FASD) is a diagnostic term used to describe the lifelong impacts on fetal development as a result of alcohol use during pregnancy. Alcohol consumption during pregnancy has been classified as a significant public health concern as 10 to 15% of Canadian women report consuming alcohol during pregnancy. Current FASD prevention efforts have been heavily criticized for their harmful and stigmatizing nature. Consequently, women may be reluctant to disclose information about alcohol use during pregnancy. FASD impacts approximately 4% of the Canadian population; however, prevalence rates have been suggested as being higher in rural, remote, and northern communities. As such, the aims of this study are three-fold: (1) to explore pregnant and postpartum women's attitudes about alcohol use during pregnancy; (2) to understand pregnant and postpartum women's perspectives regarding existing FASD prevention campaigns; and (3) to generate recommendations for informing a non-stigmatizing FASD prevention campaign in Northeastern Ontario. Overall, 30 pregnant women and new mothers across the Sudbury and Manitoulin regions between the ages of 17 and 45 will be recruited to participate. Messaging and imagery from existing FASD prevention efforts will be used to guide and facilitate focus group discussions to explore participants' attitudes, perspectives, and opinions. Data will be analyzed using a qualitative content analysis to generate salient themes from participants' responses. Therefore, the current study will contribute to the growing discourse on informing effective and non-stigmatizing FASD prevention approaches for the Sudbury and Manitoulin regions of Northeastern Ontario.

10:35 - 10:45 BREAK

10:45 - 11:05 AM - Simon Leslie (M.I.R. Indigenous Relations)

Analysis of Culturally Relevant Professional Development for Non-Indigenous Teachers

The intent of my prospective research is to look at the attributes of in-service training and support offered to non-Indigenous teaching staff working in Indigenous communities, and how those supports help to further culturally informed practice and culturally relevant pedagogy. The focus will shift away from analyzing pedagogical efficacy and look towards understanding the nature of current professional development programs to assist in transformative shifts of cross-cultural competence and worldviews for non-Indigenous teachers.

11:05 - 11:25 AM - Disal Wickramasinghe (M.Sc. Interdisciplinary Health)

The mental health of registered nurses and registered practical nurses in Northern Ontario during the COVID-19 pandemic

Since Coronavirus-19 (COVID-19) was declared a worldwide pandemic on March 11, 2020, early research found that nurses are part of the at-risk population for adverse mental health impacts of COVID-19. A review of the literature review found significant changes in the mental health of nurses working during the COVID-19 pandemic, and a lack of research exploring the mental health of Northern Ontario registered nurses (RNs) and registered practical nurses (RPNs) working during the pandemic. Therefore, a mixed-methods study was conducted to explore Northern Ontario nurses' mental health perceptions. A total of (N=143) nurses (78 RNs, 59 RPNs) responded to the quantitative survey. Nurse participants who provided comments were and (N=56) RNs and (N=49) RPNs. This presentation will discuss the preliminary results from the qualitative content analysis that utilized Helvi Kyngäs et al.'s (2020) methodology to answer the following two research: (1) What are the perceived mental health impacts of RNs and RPNs working in Northern Ontario during the COVID-19 pandemic? and (2) What changed most dramatically in the lives of RNs and RPNs in Northern Ontario with the COVID-19 pandemic? Karasek's Job Demand Model was used as a theoretical framework to guide the interpretation of the findings. Preliminary findings identified four key themes that emerged to describe nurses' perceptions: 1) Health Changes, 2) Isolation, 3) Workplace Changes, and 4) Chaos. The results from this study can be used to inform and assist healthcare institutions in implementing policies and regulations to improve work conditions for nurses now and in future scenarios.

11:25 - 11:45 AM - Hom Shrestha (Ph.D. Rural & Northern Health)

Exploring Traditional Healing and Medicine in Dementia Care in North America, Australia, and New Zealand

Introduction: Access to culturally-safe dementia care in Indigenous populations worldwide is an emerging challenge. In 2018, World Health Organization recognized traditional healers as stakeholders in dementia care at community level. This study aims to understand the roles, perception, and experiences of traditional healers, evaluate strategies for integration between Indigenous traditional healing and western dementia care approaches, and examine the policy barriers and research gaps in North America, Australia, and New Zealand. **Methods:** The Joanna Briggs Institute approach was used with its protocol development and framework, and local community stakeholder consultation. **Results:** Searched literature in CINAHL, EMBASE, MEDLINE and PsycINFO. The initial search identified 516 papers published between 2000 and 2020 that met the search criteria. After 164 duplicates were removed, we screened 352 titles and abstracts, excluding the 209 that did not meet the inclusion criteria. Second stage review of 143 full-text studies resulted in the further exclusion of 141 studies. Only two studies in Canada met all inclusion criteria and explored the potential integration of traditional healing in dementia care and the roles, perceptions and experiences of traditional healers, policy barriers and research gaps. This study demonstrates the inclusion of traditional healers, knowledge-holders, and Grandmother groups can contribute to building an evidence-based dementia care decision-making process for Indigenous people with dementia. **Conclusion:** The integration of Indigenous traditional healing and medicine in dementia care is a path to culturally-safe dementia care for people with dementia. This study recommends initiating a community engagement for inclusive a culturally safe-dementia care model globally.

11:45 - 13:00 LUNCH BREAK

SESSION 2 / SÉANCE 2

FACULTY OF HEALTH / FACULTÉ DE SANTÉ

13:00 - 13:05 - Host 2 : Keren Pelen

13:05 - 13:25 PM - Arijana Haramincic (M. Indigenous Relations)
Inuitizing Child Welfare in Nunavut

Child welfare services in Nunavut are delivered through the Department of Family Services by the Community Social Service Workers (CSSW) who are delegated to provide child protection services along with many other social services. The proposed thesis will focus on the Nunavut's child welfare system, its delivery and guiding legislation that continues to be rigid and oppressive; thus, supporting the ongoing colonization of Inuit children, youth and families despite the amendments in 2013 to include Inuit Societal Values (ISV) rooted in the Inuit Qaujimajatuqangit (IQ). This thesis will argue that it is not sufficient to have a document listing ISV to claim that it is following IQ but that the fundamental change needs to occur in how the services are delivered. The framework of child welfare services in Nunavut needs to be developed by Inuit for Inuit and guided by IQ. Furthermore, the question of the role of the non-Inuit CSSWs will be examined in the context of facilitating the decolonization of child welfare services in Nunavut. The proposed research will examine the barriers that are present in the legislation, Child and Family Services Act (CFSA), the service delivery, and the role of non-Inuit social workers in the journey of decolonization. The proposed methodology is mixed methods, integrating non-Indigenous and Indigenous methods through community-based research supported through the Indigenous epistemology. The research findings will inform the future of child welfare, ways of supporting decolonization and changes that need to occur for young Nunavummiut to receive culturally safe and aligned services.

13:25 - 13:45 PM - Léa Bélanger (M.Sc.S.Orthophonie)
Perspective of Caregivers on Caregiver-Mediated Intervention for Children With Autism
Spectrum Disorder

Background information: Autism spectrum disorder is a neurodevelopmental disorder that affects 1 in 160 children worldwide. Caregiver training is an essential part of the intervention in autism spectrum disorder as this is a complex disorder that can affect multiple aspects of a child's development. Child Care Resources (CCR) is a local organization that connects with other community partners to provide families the services and support they need. Through CCR, parents of children with autism can access a large number of training workshops targeting multiple aspects of development (language, behavior, etc.). However, following the completion of these workshops, feedback is not obtained. Objective: The goal of this project is to understand caregivers' perspective on caregiver-mediated intervention for children with autism spectrum disorder. Methodology: A qualitative approach will be used in this study. Participants will participate in semi-structured interviews and a thematic analysis will be conducted with the obtained data. Results : This study will gather information on understanding



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the perspectives of caregivers regarding caregiver-mediated interventions offered for families with children with ASD. This information will allow the community to understand what caregivers are possibly looking for in intervention services and tailor their services to these needs.

13:45 - 14:05 PM - Margaret Ngo Biyong (M.Sc.S. Orthophonie)

Étude exploratoire de l'utilisation d'un logiciel pour améliorer la fidélité de la transcription phonétique des voyelles en français chez les orthophonistes bilingues

Objet : Le but de cette étude est d'amorcer la réflexion sur l'élaboration d'un logiciel de reconnaissance vocale pour la transcription phonétique en orthophonie en s'attaquant d'abord à la transcription des voyelles à l'aide de l'analyse formantique. Problématique : Les transcriptions phonétiques réalisées par les orthophonistes présentent des variabilités importantes pour un même échantillon de parole, c'est-à-dire que la fidélité des transcriptions est généralement faible. Étant donné que la transcription phonétique est utilisée dans l'évaluation des troubles des sons de la parole, une méthode de transcription plus fidèle doit être développée afin que les traitements qui en découlent soient plus appropriés. En ayant des transcriptions phonétiques peu fidèles, certains problèmes des sons de la parole pourraient passer inaperçus ou être mal identifiés. Lorsque les difficultés des sons de la parole ne sont pas traitées à un jeune âge, d'autres aspects de la communication comme la lecture et l'écriture peuvent être affectés. Méthode : Des orthophonistes bilingues de la région de l'Ontario transcrivent des pseudo mots prononcés par un enfant franco-ontarien d'âge préscolaire. La fidélité interjuge des transcriptions sera mesurée. Les transcriptions des orthophonistes seront comparées avec celle issue de l'analyse formantique grâce au logiciel Pratt. Les fréquences des formants délimitant l'espace acoustique propre à chaque voyelle qui seront utilisées lors de l'analyse formantique avec Pratt seront calculées à partir d'un échantillon de parole de l'enfant qui prononcera les pseudomots.

14:05 - 14:25 PM - Heather Glen (MScN - APN stream)

Co-Responding Police and Nurse Crisis Intervention Team Model: An Integrative Review

In Canada, approximately one-fifth of the population lives with mental illness. Emergency calls regarding individuals in acute mental health crises, translate into thousands of requests for police. Co-responding crisis intervention teams (CITs), consisting of a registered nurse and a police officer, provide support to people in crisis, conduct on-site psychiatric evaluations, make evidence-based decisions, and provide referral to community resources. CIT models have been implemented in a variety of formats; however, little is known about the characteristics of these models and the factors that promote their success. This study is an integrative review of the literature related to CIT models. Their nature, and barriers to success are explored. Two overarching themes emerged in the analysis which provide insight into the nature of CITs as well as common factors that enhance or hinder the success of the models. In the first theme, "Teamwork is Greater than the Sum of its Parts", the data demonstrated that CITs have potential to enhance knowledge, collaboration, mutual respect and joint decision making among team members, leading to more positive outcomes for those in mental health crisis. The second theme, "Overcoming the Challenges of Collaborative Models Leads to Their Success", demonstrates that success of CITs is related to the flexible approaches, community engagement and collegiality of the co-responders. Whereas challenges, such as staff turnover, inconsistency of team members, lack of resources and funding, unmanageable call volume and lack of organizational support, must be efficiently managed to achieve success and widespread adoption of this model.

TUESDAY MARCH 22, 2022 / MARDI 22 MARS 2022

9:50 - 9:55 AM - Host 3 : Stacy Sathaseevan

SESSION 3 / SÉANCE 3

FACULTY OF ART & FRENCH PRESENTATION

9:55 - 10:15 AM - Brandon Portelance (M.Sociology)

Métis Identity: A Critical Review of the Literature

Despite some progress in the advancement of Métis rights in Canada, determining who can and can't exercise these rights continues to be a point of contention, especially in the academic literature. Scholars are divided in terms of their perceptions on Métis identity and what factors should be used to define Métis people. Some maintain that identifying as Métis is a right exclusive to Western Canada given the sense of Métis nationhood that emerged in the Red River region. Others argue that anyone with mixed-ancestors can assert a Métis identity, regardless of their geographical context. These conflicting positions have fostered a debate in the academic literature, which has complicated the Métis' efforts to achieve a mutual understanding of who they are as a distinct people. Thus, my research undertakes a systematic analysis of the literature on Métis identity to fully comprehend the claims that are made in this debate and investigate the sociopolitical implications that emerge from these diverging positions. Such an analysis is guided by the following questions: How is Métis identity defined? Who can or should be considered Métis? What sociopolitical claims are endorsed to define Métis identity? To answer these questions, I have employed a methodological weaving approach, informed by Indigenous conceptions and the Psycho-Social Ethnography of the Commonplace methodology, to bring about research that is sensitive to the realities of marginalized people (i.e., Métis). The goal of my research is to generate a more comprehensive understanding of Métis identity to address the ambiguities perpetuated in the literature.

10:15 - 10:35 AM - Lea Fieschi-Meric (Ph. D. Boreal Ecology)

Améliorer la conservation des amphibiens grâce à l'étude de leur microbiome cutané



Les amphibiens forment aujourd'hui la classe animale la plus en danger d'extinction, avec 40% d'espèces en déclin au travers du globe. Ces disparitions inquiétantes sont notamment causées par l'émergence de nouvelles maladies infectieuses, contre lesquelles le système immunitaire des amphibiens semble inefficace. Heureusement, quelques espèces de grenouilles et de salamandres résistent à ces infections grâce à leur microbiome cutané : certaines bactéries vivant sur leur peau empêchent la croissance des pathogènes. Il est donc important d'étudier les facteurs qui contrôlent la composition de ce microbiome. De plus, l'une des principales stratégies pour protéger ces animaux

consiste à déplacer les populations à risque vers des habitats moins menacés. Ces translocations pourraient avoir un impact délétère sur le microbiome, avec, par exemple, la perte de bactéries protectrices dans le nouveau milieu de vie. Il est donc nécessaire d'investiguer l'impact des actions de conservation actuelles sur leur microbiome pour s'assurer qu'elles n'exposent pas les amphibiens à des risques accrus d'infection. Dans ce contexte, nous avons étudié le réarrangement du microbiome cutané de salamandres à points jaunes (*Ambystoma maculatum*) au cours d'une translocation dans le parc Algonquin, Ontario. Les bactéries sur leur peau ont été échantillonnées avant et 10 jours après le déplacement des individus : nous avons ainsi pu observer l'impact de la translocation sur la richesse et la composition du microbiome des salamandres. En enrichissant notre compréhension du microbiome cutané des amphibiens, nos résultats ajoutent une pierre à l'édifice pour améliorer la conservation de cette classe animale si vulnérable.

10:35 - 10:45 BREAK

10:45 - 11:05 AM - Ursula Cafaro (Ph.D. Human studies)

Irreplaceable lives: The experience of downsizing, and disbanding possessions for 90+ individuals

"So many Canadians look down on seniors such that ageism has become the most tolerated form of social discrimination in Canada" (CTVNews.ca Staff, 2012, November 2). Society in general, often sees older adults as dependent, decrepit, and nearly dead (Kvavilashvili et al., 2009). Older adults also internalize ageist beliefs and thus perpetuate their own marginalization (Krekula et al., 2018). One way this can happen is by succumbing to the pressure to downsize. A common enough practice for anyone moving from one living situation to another, downsizing for older adults, however, is often seen as the final move. Such relocation brings up concerns about giving up an identity wrapped up in family homes and personal possessions (Luborsky et al., 2011). The present research examines how older adults over the age of 90 living independently make sense of downsizing in their lives. The Psycho-Social Ethnography of the Commonplace (P-SEC) methodology (Gouliquer & Poulin, 2005) was adopted given its interdisciplinary feminist roots and focus on exploring marginality. Interviews with thirty women and men (median age = 95 years) living in eastern Canada reveal various psychological, physical and social complications faced by this group related to the practice of downsizing. Recommendations for social change (e.g., advocacy for the unique characteristics within communities of older persons, and more research to better understand the effects of the intersections of age/gender/race) are offered which might reduce unnecessary complications.

11:05 - 11:25 AM - Dominic Beaudry (Ph.D. Human Studies & Interdisciplinarity)

First Nations Botany during the Contact Period: A Re-examination of Indigenous Knowledge through an Interdisciplinary Lens and Implications for an Inclusive Modern Agricultural Narrative.



First Nations Botany during the Contact Period: A Re-examination of Indigenous Knowledge through an Interdisciplinary Lens and Implications for an Inclusive Modern Agricultural Narrative. (Dominic Beaudry, February 28/22) This research will include an Interdisciplinary approach using History, Anthropology and Indigenous Studies with a focus using and analyzing Anishinaabe language to support the investigation. The research will explore the Indigenous plant knowledge during

the contact period, the impact Indigenous plant knowledge and agriculture would have on the world, and the contributions of Indigenous plant knowledge and agriculture in a modern context narrative. In the past there has not been much interest in botany during the contact period as it relates to the variety of food First Nations people grew, consumed and traded. There is much to be learned about First Nations during the contact period, their agriculture and the food security that was evident. Samuel de Champlain's memoirs indicate the Indigenous people he met in the early 1600's had complex and expansive agricultural practices. His memoirs indicate they not only grew food for their communities, but the amount of food grown would indicate an economic trade was an important part of their lives. In the Great Lakes region First Nations agriculture included corn, beans, squash, tomatoes and potatoes among other crops. These agricultural crops were unheard of in western Europe prior to contact with Indigenous peoples in the Americas. These foods were introduced to parts of Europe and would later have an economic impact. The documents for this research indicate the agricultural produce would assist in modernizing agriculture in western Europe. There are agricultural colleges and universities in Canada that do not take much interest in including the Indigenous agricultural narrative for educating students, but this narrative is much needed. The contributions of Indigenous people to the evolution of modern agriculture is [immense](#). In Canada, the Truth and Reconciliation Commission's focus is to bring truth to Indigenous narratives and the contributions of Indigenous people needs to be included. The reconciliation seeks equity, diversity and inclusion in research. The research here will be an inclusion of Indigenous knowledge and the impact of Indigenous contribution to agriculture.

11:25 - 11:45 AM - Ryan Michael Wildgoose (Ph.D. Human Studies & Interdisciplinarity)
Data on Demand: Inventiveness and Conducting Academic Research in the Age of COVID



As graduate students, we are no strangers to conducting research. This is one of the most time-consuming experiences of our degrees, especially as we figure out which sources we need to access and how to access them. The internet has provided the opportunity to access digitized material, but in many cases, scholars must travel to access sources that are not available online. The COVID-19 pandemic has produced a greater barrier to accessing research material in the form of closures, restrictions, and overall safety concerns. In such unprecedented times, scholars are forced to think outside the box and consider alternative routes to collecting their data. In this presentation, I will discuss my experience with conducting research and accessing remote sources in the age

of COVID, providing insight into different opportunities not previously considered and how such workarounds may change the future of academic research.

11:45 - 13:00 LUNCH BREAK

SESSION 4 / SÉANCE 4

FACULTY OF ARTS / FACULTÉ D'ARTS

13:00 - 13:05 - Host 4 : Monisah Mazumder

13:05 - 13:25 PM - Matthew Scott (M.A. Applied Psychology)

Examining the connection between political ideology and perceived stress on individual responses to the COVID-19 pandemic

The COVID-19 pandemic has presented unique challenges requiring individuals to adapt their attitudes and behaviours in order to facilitate the public good. These changes have come in response to many government mandates and orders including mask wearing, business restrictions, travel limitations and vaccinations. However, many of these key issues have become controversial, and understanding the reasons in this observed division between individual responses and attitudes is a multifaceted issue. Broadly, the cause of individual variation can be viewed and broken into personality and demographic differences. The current research examined these differences from two different perspectives: levels of individual perceived stress and political ideology and orientation. Data was collected between April 2021 to June 2021 via online survey, with 383 participants included in the analysis. Findings indicated that conservative political ideologies were significantly correlated with decreased support of government interventions, reduced seriousness with which individuals took COVID-19, and lowered acceptance of vaccination. Additionally, perceived stress was found to be significantly correlated with attitudes towards vaccination, with higher levels of perceived stress being less likely to be vaccinated. This research furthers understanding of the underlying motivations behind reactions to government policy in times of emergency, and can be applied to determining population-based messaging in the future.

13:25 - 13:45 PM - Sarah de Blois (Ph.D. Human Studies)

Gendered experiences of women in mining: Challenging resistance to acceptance and respect



My interdisciplinary research explores the gendered work experiences of women in mining. Statistics Canada (2020) confirms women's unequal participation in the industry, and the Mining Industry Human Resources Council (2020) reports that only 15% of the Canadian mining labour force are women. The literature attests that women often face challenges of acceptance in male-dominated industries. They disproportionately experience discrimination and harassment in industries in which they are underrepresented (Statistics Canada, 2021). The literature does not fully address women's work experiences in this industry with mining's important place in Canada's economy, both nationally and regionally. In 2020, I interviewed 35 men and women who work in the mining industry in Sudbury, Ontario. My interviews

asked women (N=24) about their direct work experiences and workplace interactions in the mining industry, and men (N=11) about their work experiences and workplace interactions in the industry with women. Methods of analysis bricolaged approaches of thematic and critical discourse analysis. Findings support the need for further

initiatives toward equity, diversity and inclusion, not only in mining, but in other gender-imbalanced industries. Women described experiencing resistance to the achievement of acceptance and respect at work. Many experienced harassment and discrimination, and spoke about the masculine organizational culture present in their work environments. Nevertheless, they also often described job satisfaction in the work that they perform. This reveals that the culture of the mining industry is complex. The purpose of this study is to understand this complexity of the gendered climate of the mining industry.

13:45 - 14:05 PM - Twinkle R. Arora (Ph.D. Human Studies)

Finding friends in fiction: Fan writing, parasocial interactions and social belongingness



While it is well established that fan-fiction is a pleasurable activity and a channel for marginalized voices, and parasocial relations serve a social function, no study has examined these ideas by combining them and investigating how writing fan-fiction may strengthen parasocial bonds and, in turn increase social belonging and wellbeing. Consistent with the Social Surrogacy hypothesis (Derrick, 2012), it is possible that like fiction/non-fictional television and interactive video games, writing fan-fiction may impact social functioning by way of parasocial interactions. This study explores this phenomenon using a mixed-methods approach, involving a statistical analysis using a survey design, and a qualitative analysis of the experiences of fan writers and their motivations. Quantitative findings indicate significant group differences between time spent writing fanfic and parasocial interactions, and social belongingness. Spearman correlations further indicate that both greater social presence and belongingness were associated with higher parasocial interactions. Finally, mediation results confirmed that when participants develop strong parasocial interactions through writing fanfic, they are more motivated then to participate in fanfic communities to explore these relationships with "real" people which in turn provides a strong sense of belonging with fanfic communities. Ten individual, semi-structured interviews were also conducted and analyzed using thematic analysis, following the guidelines of Braun and Clarke (2006). Data analysis indicates that the act of fan writing supports positive coping strategies especially during stressful situations (e.g., the current pandemic). Although the qualitative data brought attention to the various motivations for writing fanfic, fan writers engaged with the characters they wrote about using two main processes: parasocial interactions and identification. Participants' interview responses confirm that favored media characters can mimic friendships, possibly alleviating loneliness, especially when they experience rejection or social loss. Conversely, participant responses indicate that identification functions to increase self-knowledge, alter beliefs/attitudes, and guide participants.

WEDNESDAY MARCH 23, 2022 / MERCREDI 23 MARS 2022

12:00 - 12:05 PM - Host : Dr. Tammy Eger (*Vice-Président de recherche / Research Vice-rectrice of research*)

3MT COMPETITION (room C-203)

12:00 to 14:00 PM

3MT Competition

The 3MT competition provides graduate students with an opportunity to refine skills that can be transferred after graduation to diverse career paths. Distilling research into a clear form, without over-simplifying or making it overly-complex, and highlighting the wider implications of the research are important skills to carry into post-graduate employment and public service.

The 3MT competition winner will be invited to compete at Provincial Finals to be held at the University of Guelph on May 4th, 2022. 3MT is a university wide competition developed by the University of Queensland in 2008 for graduate students in which participants present their research and its wider impact in 3 minutes or less to a panel of non-specialist judges. The challenge is to present complex research in an engaging, accessible and compelling way, using only one slide.

Compétition 3MT

Le concours 3MT offre aux étudiant.e.s aux études supérieures l'occasion d'affiner des compétences qui peuvent être transférées après l'obtention du diplôme vers divers parcours professionnels. Distiller la recherche sous une forme claire, sans la simplifier ou la rendre trop complexe, et mettre en évidence les implications plus larges de la recherche sont des compétences importantes à mettre en œuvre dans le cadre d'un emploi post-universitaire et du service public.

Le gagnant ou la gagnante du concours 3MT sera invité à participer à la finale provinciale qui aura lieu à l'Université de Guelph le 4 mai 2022. 3MT est un concours universitaire développé par l'Université du Queensland en 2008 pour les étudiant.e.s aux études supérieures. Les participant.e.s présentent leur recherche et son impact en 3 minutes ou moins à un panel de juges non-spécialistes. Le défi consiste à présenter une recherche complexe d'une manière attrayante, accessible et convaincante, en utilisant une seule diapositive.



Zoom link for all sessions: <https://laurentian.zoom.us/j/95131958579>

3MT COMPETITION PRESENTATIONS

Arghavan Tafvizi (Boreal Ecology)

Hydrologic Model, A Virtual Sample of The Real World!

Sarah de Blois (PhD Human Studies and Interdisciplinarity)

Women, Mining, and Gender: Experiences from Sudbury, Ontario

Derek Leung (Mineral Deposits)

TotBlocks: Visualizing modular mineral structures with 3D-printed interlocking brick modules

Nasim Yavari (Master's of Applied Science, Engineering)

The promising future of microalgae as the most important organisms in the world!

Parinaz Khalilzadeh (Biology)

Can genetics save northern leopard frog?

Hom Shrestha (Indigenous Relations)

Traditional Healers' Roles and Experiences for Indigenous Populations in North America, Australia and New Zealand

15:00 - 15:05 PM - Host : Dr. Chantal Barriault (*Director | Directrice of Science Communication Graduate Program | Programme d'études supérieures, Communication de la science*)

BIO/SCI COMM PRESENTATIONS (<https://laurentian.zoom.us/j/91959893659>)

15:00 PM to 16:00 PM

Students from the [Biology](#) and [Science Communication](#) programs present the 'Sci Comm Bio Bites Showcase.' Produced and directed by the Science Communication students, this group of biologists will engage and inspire the audience with their fascinating research and polished presentation skills.

THURSDAY MARCH 24, 2022 / JEUDI 24 MARS 2022

9:30 - 9:35 AM - Host 5 : Nasim Yavari

SESSION 5 / SÉANCE 5

FACULTY OF SCIENCE / FACULTÉ DES SCIENCES

9:35 - 9:55 AM - Jiechun Zhu (M.Sc. Biology)

The roles of hydrogen sulfide in elastin homeostasis in smooth muscle cells

The formation and development of elastic fibers are complex and tightly regulated. Enzymatic degradation of elastin by matrix metalloproteinases (MMPs) leads to the degeneration of aortic wall and constitutes the most prominent characteristic of aortic aneurysm. Hydrogen sulfide (H₂S) as a new gasotransmitter exhibits a wide variety of vascular protective functions through its anti-inflammatory and anti-oxidative actions. However, the regulatory role of H₂S on elastin homeostasis has not yet been explored. Here we found that an active inflammatory cytokine TNF α could induce MMP2/9 hyperactivity and elastin degradation in cultured smooth muscle cells, which could be reversed by overexpression of cystathionine gamma-lyase (CSE, a major H₂S-generating enzyme) or exogenously applied H₂S at physiological relevant concentration. In contrast, knockout of CSE deteriorated TNF α -induced MMP2/9 hyperactivity and elastin degradation. Either TNF α or H₂S had no effect on the mRNA or protein expressions of MMP9, while H₂S reduced MMP2 transcription. Also, we showed that H₂S had no effect on TGF- β 1 promoted elastogenesis. Taken together, this study suggests that H₂S can attenuate dysregulated elastin degradation via decreasing MMPs activity. Therefore, CSE/ H₂S system can be a new therapeutic avenue for the prevention and treatment of elastin dysfunction-related diseases.

9:55 - 10:15 AM - Natalie Mullin-Bélanger (M.Sc.Biology)

Exploring the Potential of Electroencephalography and Brainwave Activity in Thought
Decoding

Thought decoding is an emerging area of neuroscience research that uses neural patterns collected from neuroimaging tools to decode human thought. Successes in this area of research could lead to the development of a brain machine interface (BMI) for speech. This BMI would support individuals who lack the ability to communicate due to inhibited motor skills. The purpose of the research at hand is to begin exploring whether electroencephalography (EEG), a measure of human brainwave activity, is a viable tool for thought decoding. More specifically, the relationship between EEG data and vocabulary, responses to binary question responses, and emotional valence were analyzed.

10:15 - 10:35 AM - Arghavan Tafvizi (Ph.D. Boreal Ecology)**Hydrologic Model, A virtual Simulation of The Real World**

Tracer-aided hydrologic modeling coupled with field-based stable isotope surveys offers a potentially powerful approach by which to investigate mesoscale streamflow generation processes, the influence of wetlands and their model representation. In this study, we investigate the influence of wetland connectivity on streamflow generation in a Precambrian shield mesoscale watershed by developing application of the tracer-aided hydrologic model isoWATFLOOD for the ~ 12,740 km² Sturgeon-Lake Nipissing watershed located in Northeastern Ontario, Canada. Monthly surveys of $\delta^{18}\text{O}$ and $\delta^2\text{H}$ in river flow were collected between 2013 to 2018 across eight sub-catchments. Previous statistical analysis has highlighted the importance of wetlands, lakes, and

quaternary geology as influential in explaining differences in hydrologic and isotope response in the study watershed. The new application of isoWATFLOOD to the study watershed allows simulation of discharge and stable isotopes in streamflow and soil moisture across multiple sub-catchments. Six versions of model with different connected wetlands (%), a structural model feature, were set to find the impact of wetland connection on model simulations. Model resolution is 5 km $\times$ 5 km and six GRUs are generated based on different landcover types. Each model version with specific connected wetland (%) is calibrated and validated for the periods of 2012-2018, and 2007-2011. Kling-Gupta (KGE) efficiency metric for flow and $\delta^{18}\text{O}$ are used as two objective functions for model optimization (PA-DDS algorithm), using the Ostrich toolkit. Preliminary calibration results show reasonable simulation accuracy for discharge and isotopes. Impact of wetland connectivity on streamflow generation is explored through experiments with variation in model structure.

10:35 - 10:45 BREAK

10:45 - 11:05 AM - Michel R Lapointe (Ph.D. Biomolecular sciences)**Yeast Anhydrobiosis and Sub-Background Radiation Environments**

Yeast are a widely used model organism in a variety of fields. Their eukaryotic cell structure and numerous gene orthologs to humans lend to their versatility in basic research. The additional benefit of anhydrobiosis make for a unique model organism. Since the yeast is metabolically inactive during desiccation, they can accumulate damage from a variety of stressors. Upon rehydration in ideal conditions yeast will use repair mechanisms associated with the stress response to rehydration itself, as well as those of non-desiccation related accumulated damage. This provides an ideal avenue by which we can compare the effects of low, natural and sub-natural radiation dose responses. By making use of the low-radiation underground facilities at SNOLAB, we can eliminate most exogenous background radiation sources to a dose rate ~27 fold lower than the natural background. Simulations have indicated that within this radiation shielded environment, the most significant remaining source of radiation dose is endogenous Potassium-40. With a natural abundance of ~0.012%, ⁴⁰K undergoes β decay. By lowering the overall ⁴⁰K content of the yeast by growth within a synthetic medium with enriched ³⁹K (99.97%) as the only source of potassium, we will effectively decrease the background dose rate to a level below what has been achieved at SNOLAB. Desiccated yeast with low endogenous ³⁹K levels will be stored within the low

radiation environment at SNOLAB for one year, their post-rehydration survival, growth rates, metabolic rates, and other measures will be compared to equivalent samples stored in a normal background radiation environment.

11:05 - 11:25 PM - Manon Valiquette (M.Sc.Chemical Sciences)

The Immune Modulating Effects of Low Dose Ionizing Radiation and Its Application for Cancer Therapy

Ionizing radiation is an established treatment modality for cancers. Unlike targeted high dose therapies, there is growing evidence that low dose radiation (LDR; doses < 0.5 Gy) promotes tumor reduction indirectly via stimulation of the immune system. Natural killer (NK) cells are one of the main immune cells involved in the defense against cancer and they have been implicated in LDR induced anticancer effects. Specifically, several studies have suggested that LDR could increase the cytotoxicity of NK cells, both in-vivo and in-vitro. Despite this, the exact cellular and molecular mechanisms responsible for LDR induced stimulation of NK cells and their cytotoxic properties have not yet been identified. Therefore, the overall objective of my study is to elucidate the impacts of LDR on NK cell growth and cytotoxicity in-vitro, using the NK-92 cell-line. Specifically, NK-92 cells will be exposed to x-ray doses ranging from 10 mGy up to 10 Gy, and cell growth rates will be measured post-radiation. NK cell cytotoxicity will then be quantified through the co-culturing of NK-92 cells with the tumorigenic K-562 cells, and the percent cytotoxicity following various radiation doses will be measured using flow cytometry. We hypothesize that radiation exposure below 0.5 Gy will increase the cytotoxicity of NK-92 cells. Overall, this research will be the first to comprehensively characterize the dose dependent effects of LDR on the immune system and its applicability in cancer therapy.

11:25 - 11:45 PM - Mikhail Zuykov (Ph.D. Material Sciences)

Bivalve Shell vs "Golden Fleece antique myth": new passive sampler of nanoparticles in natural waters

We discuss how bivalve shells with fleecy external surfaces can be used as a solid sampler for detection of man engineered metal-based nanoparticles (NPs) in natural waters. An amazing analogy with a famous "golden fleece" mentioned in an antique myth can be stated. According to the legend, the gold was mined in the Caucasus by plunging a sheep's fleece into the water of a gold-containing river. In our work, the roles of "gold" and "fleece" are played by the silver nanoparticles and shells of freshwater bivalves *Pyganodon* sp., respectively. Discharge of NPs from various sources into freshwater environments requires the development of sampling techniques. Since 2014, the fate of 15 kg of PVP-coated silver nanoparticles (Ag-NPs) (size 30±50 nm), introduced into a small boreal lake (L222) in the Experimental Lakes Area (ELA) in northwestern Ontario, is under continuous observations by the research community. In 2019, adult unionid mussels, *Pyganodon* sp., were collected from L222. Their shells were studied with optical and electron microscopes. Fleecy micromorphology of intact shell surface promoted the capture and storage of silica diatom shells. Ag-NPs (individual particles and aggregates with d= ~100 nm) were adhered to both shell surface and diatoms. Ag-NPs are randomly distributed on the surface of both substrates. These findings have a critical importance for elaboration of effective strategies for detection of engineered and incidental nanoparticles, characterization of their toxicity and fate in natural water environments.

11:45 - 12:00 PM BREAK

12:00 - 12:05 PM - Introduction : Nasim Yavari

12:00 - 13:00 GUEST SPEAKER : JULIE MOSKALYK

Science Director at Science North & Dynamic Earth

‘Advancing Equity, Diversity, and Inclusion in Leadership: What we have learned from Women in STEMM’



SESSION 6 / SÉANCE 6

FACULTY OF SCIENCE / FACULTÉ DES SCIENCES

13:00 - 13:05 PM - Host 6 : Paul Marchetta

13:05 - 13:25 PM - Emmanuel Ngoma (Ph.D. Natural Resources Engineering)

Tapping into unclaimed gold while removing toxic contaminant through pilot-scale optimization of a biological leaching of Arsenopyrite/Pyrite-Rich mine tailings



Abstract: Mine tailings are predominantly discarded following mechanical and chemical treatment for the extraction of a valuable metal. They can however contain low grade metals that remain within sulfide minerals that were not effectively liberated using conventional extraction methods. This can be further exacerbated when the chosen extraction processes do little to release refractory minerals. In addition, the sulfide minerals contained in these tailing can become contaminants of ground waters, other water bodies and soil surrounding the tailings through weathering and realizing acid, heavy metals, and other contaminants. Our initial batch study compared native and defined microbial consortia for the recovery of gold from refractory arsenopyrite/pyrite concentrates and tailings using the BACOX technology, which has demonstrated

positive results of up to 83% gold recovery and arsenic solubilization between 78-99% depending on the consortia (Khan et al., 2019). This initial optimization resulted in a material blend composed of floatation concentrates, crushed ore, and weathered tailings to achieve Fe:S ratio stable for ferric arsenate production and Au:S ratio for gold leaching, proposed for subsequent pilot scale bioleaching. This study is looking at upscaling the microbial leaching of the proposed blend material to a continuous system of three 50 liters stirred tank reactors in series to increase gold recovery and arsenic solubilization while using genomic tools to understand the microbial population dynamics. Design, fabrication, and proposed reactor optimization prior to mineral bioleaching are presented in this paper.

13:25 - 13:45 PM - Maryam Pourmahdavi (Ph.D. Natural Resources Engineering)
Design and verification of CO₂ capture and sequestration systems utilizing the pressure swing absorption process in a hydraulic air compressor (HAC)

The purpose of this research is to characterize and evaluate the potential of the hydraulic air compressor (HAC) as a low-cost method to capture and sequester carbon dioxide (CO₂) via direct aqueous mineral carbonation. Currently, mineral carbonation is a promising option for capture and sequestration of CO₂. However, one of the challenges in the mineral carbonation process is the slow rate of mass transfer between gaseous CO₂ and the liquid solution phase. According to a series of experiments that were conducted on the HAC pilot plant, a HAC can provide higher molar flow rates of dissolved CO₂ in comparison to the other gas-liquid mass transfer techniques. The experiments also demonstrated that the gas dissolved in the downcomer of the HAC largely stays in solution, and does not exsolve in the HAC riser during depressurisation. This is a significant result for applications in CO₂ capture and sequestration because it indicates that the capturing solution cannot be regenerated through depressurisation. Instead, mineral carbonation could form an effective means to regenerate the circulating HAC solution. The precipitated calcium carbonate (CaCO₃) that is the end product of the reaction could be separated by filter or hydrocyclone.

13:45 - 14:05 PM - Kyle Vincent (MSc. Biology)
Weaving Indigenous Knowledge and Western Science to Investigate the Impacts of Railways on Wildlife

Railways have been documented to cause mortalities for many different species, but overall, the ecological impacts of railways are understudied. Most research on wildlife-train collisions has focused on large mammals, but understanding railway-specific risks for underrepresented taxa, especially vulnerable species, is important for developing effective mitigation strategies. We aim to fill knowledge gaps using a two-eyed seeing approach that weaves Indigenous Knowledge and Western science to investigate wildlife interactions with railways. We initiated this project based on concerns from First Nations communities about wildlife mortalities on railways, particularly species at risk. To inform study design, we invited community members to share knowledge concerning wildlife-railway impacts in individual interviews. We then conducted weekly visual surveys over three field seasons along two 3.5 km sections of railway in Eastern Georgian Bay, Ontario, recording the locations of all wildlife observed alive or dead. In total we recorded 461 observations of individuals from 40 different species, of which 77% were found dead, and 23% were encountered alive, findings corroborated by shared Indigenous Knowledge. Reptiles and amphibians were the most severely impacted taxa, accounting for 87% of observed mortalities. We observed seven different at-risk species interacting with the railway, of which individuals from three at-risk turtle species and one at-risk snake species were found dead on the tracks. These results highlight the value of using multiple knowledge systems in ecological research and indicate some taxa such as reptiles and amphibians may be more susceptible to railway mortality.

14:05 - 14:15 BREAK

14:15 - 14:35 PM - Nasim Yavari (M.Sc., Engineering)

Fermentation CO₂ biosequestration for the production of high-value health beneficial natural compounds from green microalgae

Global warming with the approximate rate of 0.2°C per decade is occurring even with the implementation of greenhouse gases mitigation policies around the world. Carbon dioxide from various industrial sources plays a key role in this major environmental issue. The beverage industry is a prime target for biological carbon capture. For example, beer as the fifth most consumed beverage (9.6 L/capita per year) shows a growing consumption trend and continues to be well-liked by people worldwide. According to Moreno et al., approximately 25.8 million tons of CO₂ is produced worldwide as a by-product of alcoholic fermentation processes on a yearly basis. Interestingly, carbon dioxide coming from alcoholic fermentation processes can be used as a highly available and clean carbon source for cultivation of photosynthetic microorganisms such as eukaryotic microalgae. Phototrophic microalgae have the ability to convert the energy from the sun to chemical energy and utilize CO₂ as a source of carbon with a 10 to 50 times higher efficiency than terrestrial plants. Biomass that is generated through photosynthesis is a value-added material containing components that are beneficial food supplements, including minerals, carotenoids, proteins, fatty acids, vitamins and antioxidants. These components can be used in a wide range of applications ranging from food industry and biofuel production. The produced biomass also has the capacity to be used to produce pharmaceuticals and nutraceuticals and animal feed. The beneficial effects of microalgae are not limited to improving human overall health, lowering the risk of disease like cardiovascular disease and increasing life expectancy.

14:35 - 14:55 PM - Meghan McCue (Ph.D. Biomolecular Sciences)

Staying Strong Through Chemo

Doxorubicin is a chemotherapeutic agent used to treat a variety of cancers. Despite its effectiveness, it often accumulates in skeletal muscle (SM), causing severe toxicity and wasting. Loss of SM mass and function can worsen prognosis, reduce strength and autonomy, and impair muscle metabolism. Electrical stimulation could be a low-effort way to exercise the muscle to prevent these effects. This study aimed to determine if various electrical stimulation protocols attenuated Doxorubicin accumulation and SM toxicity in a rodent model. Rats (n=42) were randomly assigned to either a control or one of six stimulation protocols (1 Hz or 3 Hz for 5, 15, or 30 minutes). Those in the stimulation protocols received a single 4.5 mg/kg dose of Doxorubicin. Twenty-four hours following Doxorubicin administration, the sciatic nerve of the left leg was stimulated while the right leg served as an intra-individual control. Muscles are currently being investigated for markers of muscle damage and glucose transporter activity (MuRF-1, Atrogin-1; ROS/RNS; GLUT-4) using RT-qPCR and Western Blotting. Muscles and plasma are being assessed for Doxorubicin concentration using high-performance liquid chromatography. Together, these measures will determine if electrical stimulation directly affects Doxorubicin accumulation and atrophic signalling within the muscle. This study seeks to improve our understanding of Doxorubicin-SM interactions to help develop effective adjuvant strategies. Based on the hypothesis, electrical stimulation could serve as a novel tool to mitigate the SM side-effects of Doxorubicin and improve patient outcomes.

FRIDAY MARCH 25, 2022 / VENDREDI 25 MARS 2022

12:00 - 12:05 PM - INTRODUCTION
CLOSING CEREMONY / CÉRÉMONIE DE CLÔTURE

12:05 – 13:00 PM - Présenté par :



Paul Marchetta, GSA President (M.Sc. Biology)



Nasim Yavari, GSA Vice-President Events (M.Sc. Engineering)



Stacy Sathaseevan, GSA Humanities Representative (Graduate Studies Information Officer/Agente d'information des cycles supérieurs)

Monetary awards for best presentation in each Faculty

1. Best French Presentation
2. Best Indigenous content Presentation
3. Education and Health
4. Arts
5. Science, Engineering and Architecture

3MT Competition Award

The 3MT competition winner will be invited to compete at Provincial Finals to be held at the University of Guelph on May 4th, 2022.