

Research day2022

March 28, 2022

Free and Open Registration

Via Zoom – Links below

Accessing Research Day 2022 Presentations Recordings:

<https://vic.utoronto.ca/assets/PDFs/Vic-Principal/Quercus-Course-Enrol-Research-Day-2022-Presentation-Recordings.pdf>

Table of Contents

Schedule.....	2
Panel #1: Health and Human Flourishing.....	3
Panel #2: Identities and Relations.....	4
Panel # 3: Material Culture and Local History.....	6
Panel #4: Animal and Plant Life.....	7
Panel # 5: Technologies and Techniques.....	9
Research Day Prizes.....	10

Schedule

11:05-11:10 AM EST: Welcome

Professor Shaun Ross

11:10-11:15 AM EST: Opening Remarks

President Will Robins

11:15-11:55 AM EST: Panel #1: Health and Human Flourishing

Chair: Professor Paul Gooch

Presenters : Madison Hossack, Jihyun Kim, Miranda Chang, Rebecca Raphael

12:05-12:45 PM EST: Panel #2: Identities and Relations

Chair: Principal Angela Esterhammer

Presenters : Baishen Yu, Qilin Yu, Megha Manoj, Jaemin Hwang

1:05-1:55 PM EST: Panel #3: Material Culture and Local History

Chair: Professor Ira Wells

Presenters: Kayla Paciocco, Erin Case, Madeleine Schmuckler, Derek Choi

2:05-2:45 PM EST: Panel #4: Animal and Plant Life

Chair: Professor Angus McQuibban

Presenters: Emilie Nero, Jessie Wang, Savina Cammalleri, Kieran Guimond

3:05-3:45 PM EST: Panel #5: Technologies and Techniques

Chair : Professor Mark Solovey

Presenters: Conorr Norquay, Brianna Davies, Cecilia Zhehui Xie, Leila Tjang

Panel #1: Health and Human Flourishing

11:05-11:55 AM EST

Chair: Professor Paul Gooch

Madison Hossack, *PPAR γ Agonists Reduce Radiation-Induced Fibrosis*

Cancer continues to be a leading cause of death worldwide, but as treatments improve and survivorship increases, so does the prevalence of treatment-related complications. Radiation-induced fibrosis (RIF) occurs when healthy tissues are damaged by radiation and progressively lose elasticity as components of the tissue's underlying extracellular matrix (ECM) accumulate. RIF compromises organ function and can itself lead to death. Our group has identified the complementary metabolic pathways glycolysis and fatty acid oxidation as key regulators of ECM component accumulation. We hypothesize that activating the fatty acid transporter CD36 and its downstream target PPAR γ will reduce ECM accumulation in fibrotic tissue.

Madison Hossack is a fourth-year Victoria College student studying Fundamental Genetics and Philosophy. She conducts research at Princess Margaret Cancer Research Center, and has interests in breast and blood cancers, reproductive health, and bioethics.

Jihyun Kim, *Targeting Memory Cells using Immediate Early Genes*

Learning activates a population of neurons that undergo persistent chemical and/or physical changes, and these neurons, named engram cells, in turn respond for specific learning and memory. For these changes to occur, there must be genes and proteins mediating these changes, and scientists found immediate early genes that respond to neural activity immediately. Previous study has shown that two immediate early genes, cFos and Npas4, could actually target two different subengram in dentate gyrus and mediated distinct functions in memory. This study aims to replicate this study and discriminate functionally distinct neuronal ensembles, specifically in lateral amygdala.

Jihyun (Paige) Kim is a third year student studying Human Biology and Cell&Molecular Biology. Paige has been working at Josselyn Frankland Lab in Peter Gilgan Centre for Research and Learning (SickKids Hospital).

Miranda Chang, *How Spatial Context Moderates the Episodic Richness of Autobiographical Memories*

Central to remembering life events, autobiographical memory, is the rich spatial context in which they occur. We investigated whether spontaneously narrated spatial contextual details when participants first remember memories moderates how well those memories are remembered. We used an autobiographical memory dataset with participants' recollections of real-world memories

at two timepoints. We scored for spatial contextual details at the first timepoint and measured event-specific details to assess memory richness. We showed that for memories initially recalled with lower details, those with higher levels of spatial contextual details had better retention of memory richness. This demonstrates how spatial context scaffolds the memories that need it most.

Miranda Chang is a 4th year student pursuing a psychology research specialist and neuroscience major. She will be presenting her honour's thesis that she has been working on over the past year with Dr. Morgan Barense at the Memory & Perception Lab.

Rebeccah Raphael, *The Halifax Helpers: Impact and Evaluation*

This study examined the efficacy of The Halifax Helpers, a pilot program designed by youth in Halifax, Nova Scotia to deliver free virtual tutoring sessions to marginalized students amidst the COVID-19 pandemic. Study aims were (1) assess service users' perceptions of The Halifax Helpers, (2) identify areas for development and (3) provide recommendations for improvement. Findings indicated that service users reported highly positive tutoring experiences and an increase in positive outcomes, specifically in the areas of confidence and academic achievement. Results also highlighted an underrepresentation in service provision for Black, Indigenous, and low-income families. Recommendations to reach these groups and reduce barriers for other marginalized populations, such as New Canadians, are also discussed.

Rebeccah Raphael is a second-year student studying Nutrition and Health Studies at Victoria University.

Panel #2: Identities and Relations

12:05-12:45 PM EST

Chair: Principal Angela Esterhammer

Baishen Yu, *Recent divisions and prospects of India-Russia relations*

Affected by several geopolitical shocks, a growing sense of division between the Republic of India and the Russian Federation has become obvious. Although both parties have been emphasizing the significance of their bilateral relations, the apparent controversies still signal a subtle change in India-Russia relations. So are these signs of division temporary, or are they signs of a turning point in India-Russia relations? What will happen to India-Russia relations? This presentation argues that the divisions that have been emerging recently will not fundamentally change the course of India-Russia strategic cooperation. However, the golden age of India-Russia relations has passed.

Baishen Yu is a third-year student double majoring in Economics & Political Science. Outside of academics, he enjoys writing commentaries on real-time world affairs. This presentation is his fresh research regarding Great Power Politics.

Qilin Yu, *Women's Presence on the Stage of Beijing Opera in Late Qing and Early Republic*

This research project is a research essay written for a course. Through the review of a variety of sources, the story of females making their way onto the stage of Beijing opera in late 19th and early 20th century is shown. Certain socio-political factors including the protection provided by concessions, the influence of social activists, and the actual status of women in society allowed the emergence of female performers. Their appearance revolutionized the Beijing opera industry by breaking it from eroticism and providing a female perspective onstage.

Qilin Yu a first-year international student from China. He is aiming to learn more in psychology, drama, and education in the future, and to provide and promote a distinctive Chinese perspective to the UofT community.

Megha Manoj, *Impact of Parenting Style on Alcohol Use and Mental Health in Youth with Learning Disabilities*

Substance abuse is an ongoing problem amongst youth and research has found that youth with learning disabilities (LDs) are at an increased risk for substance abuse and internalizing problems. With the current lack of literature on this topic, the aim of the study is to examine whether parenting style predicts alcohol use and internalizing symptomology in youth with LD. The results of the study revealed that mother's permissive parenting predicted alcohol use while mother's authoritarian parenting predicted internalizing behaviours. Findings from this research can be used to create new treatment plans for treating behavioural problems in youth with LD's.

Megha Manoj is a 4th year student pursuing a double major in Psychology and Biology. She is a research assistant at Academic intervention's lab at OISE. With her research, she aims to improve disability services and mental health awareness.

Jaemin Hwang, *Promoting Reparative Behaviour in Toddlers Through Parenting*

Beginning in toddlerhood, individuals respond to transgressions with either guilt-induced reparative behaviour, such as taking responsibility, or shame-induced avoidance (Drummond et al., 2017). We are examining whether inductive discipline—wherein parents draw children's attention to the victim's distress—promotes toddlers' reparative responses, depending on their familiarity with victims. Toddlers are led to believe they have broken the experimenter's toy in the lab and parents report on how they and their child would likely react following a hypothetical transgression via a questionnaire. We hypothesize that inductive discipline will predict toddlers' reparative responses toward familiar and unfamiliar victims, with more reparation toward familiar victims.

Jaemin Hwang is a second-year student pursuing a Psychology Specialist and Education & Society Minor. Jaemin is interested in psychological research, specifically exploring the parental, educational, and cultural factors that influence children's development.

Panel #3: Material Culture and Local History

1:05-1:55 PM EST

Chair: Professor Ira Wells

Kayla Paciocco, *Judging a Book by its Cover: Penguin Edition*

This project offers a semiotic analysis of book covers, working to answer how they became significant to the publishing industry by creating a visual concept of a book's content. This presentation focuses on book covers published by Penguin and its imprints, Puffin and Pelican, by exploring the publisher's evolving eras, series, and design styles. Through the use of semiotics, the study of signs, symbols, and their interpretations, this project aims to showcase an in-depth examination of the book covers and their design history, leading to a comprehensive discussion with a new perspective on this subject.

Kayla Paciocco is a third-year student majoring in Political Science with a double minor in Digital Humanities and Semiotics and Communication studies. She is hoping to pursue a Master of Information in Library Sciences.

Erin Case, *Redefining Heritage: Shifting Away from Nation-Building*

What is included in definitions of heritage is often limited. Different levels of Canadian governments have varying definitions, often including some while excluding others. The Ontario Heritage Trust (OHT) has been working to expand this definition and reflect it in its property acquisitions. By comparing the focus of the federal government's heritage sites to the focus of the OHT's sites, one can observe a shift by the OHT to include types of histories not seen at the federal level. This shift towards a broader definition expands the potential of heritage sites in Ontario in celebrating life and inspiring the future.

Erin Case is a third-year undergraduate student majoring in History, and double-minoring in Material Culture and French Studies. She is looking to pursue a master's in museum studies and curation.

Madeleine Schmuckler, *Dr. Derwyn Owen's impact on theology at Trinity College, 1957-72*

Dr. Derwyn Owen (Department Head, Religious Knowledge and Trinity College Provost), was a celebrated theologian and influential figure at UofT. He notably removed the in loco parentis status of Trinity College, which allowed the college to supervise students in the absence of their parents. He made this decision because of his personal religious beliefs, which he termed Christian Humanism. This led me to an exploration of Dr. Owen's impact on theology and administration during his time at Trinity College through an examination of his archived documents at Trinity College. My presentation concerns Dr. Owen personally, as well as the documents surrounding in loco parentis in 1971.

Madeleine Schmuckler is a first year student planning to study Global Health and European Affairs. She finds passion in the intersectionality between disciplines, and attempts to reflect this in both her personal and academic endeavours.

Derek Choi, *American Military Buttons In East Toronto: Uncovering the Movement of Material Culture*

In the summer and fall of 2021, four nearly identical American 11th regiment buttons were dug up from the Ashbridge Estate in East Toronto. Found alongside other late 18th century artifacts, the question becomes: How did these buttons, associated with the American military, find their way to a farm outside of what was then York? Identifying the manufacture of these buttons, the answer lies, perhaps, in one of two places: The Ashbridge family's origins in Pennsylvania, or in their participation in the War of 1812.

Derek Choi is a fourth year student studying for an English major, as well as an Archaeology Minor and a Material Culture Minor, which is where this research stems from.

Panel #4: Animal and Plant Life

2:05-2:45 PM EST

Chair: Professor Angus McQuibban

Emilie Nero, *Microplastics in Arctic Char and their Summer Feeding Habitat*

Plastic pollution is an urgent environmental issue, especially in remote areas and aquatic ecosystems. This project used Arctic char, an indicator of ecosystem health, to evaluate the presence and abundance within the char and their summer feeding habitat. Char and sediment were taken from Byron Bay, Nunavut to be digested and separated for microplastic extraction. The most common colour and morphology found in both sediment and char were clear fibers. These findings are crucial in understanding microplastic distribution within the North, and how the abundance of microplastic fluctuates within future years due to other stressors, such as climate change.

Emilie Nero is a second year student studying Health and Disease, Biology, and Environmental Science. Emilie is passionate about investigating the effects of pollution and anthropogenic stressors on both human health and ecosystems.

Jessie Wang, *Dynamics of duckweed-microbe interactions across nutrient environments*

Duckweeds are aquatic plants that inhabit a variety of freshwater ecosystems. These plants continuously associate with microbes in the water, providing a simplified system to study the impacts of environmental change on plant-microbe interactions. As human activities continue to change the environment, organisms face novel challenges in their surroundings. We examined context-dependency in duckweed-microbe interactions across nutrient gradients. This allowed a fine-tune resolution of variation in plant responses to nutrient environments and the identification

of “optimum” nutrient levels for plant performance. Our study provides considerations for mitigating the impacts of human activities on the nutrient landscape of environments.

Jessie Wang is a fourth-year student studying Ecology & Evolutionary Biology and Molecular Genetics. Throughout her undergraduate career, she has been investigating the impacts of global change on the dynamics of plant-microbe interactions and she plans to further this research as she pursues a PhD in Ecology.

Savina Cammalleri, *Identifying Novel Nematicides to Combat Plant Parasitic Nematodes*

Plant-parasitic nematodes destroy over 12% of global food crops every year, which equates to roughly 157 billion dollars (USD) lost annually. With a growing global population and limited arable land, controlling PPN infestation is critical for food production. Compounding the challenge of maximizing crop yields are the mounting restrictions on effective pesticides because of a lack of nematode selectivity. Hence, developing new and safe chemical nematicides is vital to food security. The goal of this project is to identify new, safe, and selective nematicides with novel mechanism of action for crop protection against plant parasitic infestation.

Savina Cammalleri is a third-year student doing a double major in biochemistry and molecular genetics. Her research has focused on nematicide discovery where she developed protocols to use plant parasitic nematode species in the lab.

Kieran Guimond, *Sexual selection acting on the wings of male *Drosophila suzukii**

Drosophila suzukii is a species of invasive fruit flies. During courtship the males vibrate their wings to create a "song." This suggests that the wings are important when the female is selecting a mate, and that the wings are under sexual selection. This experiment specifically focused on the how the shape of the male's wings affects its mating success. Binomial mate trials were conducted, where the female was choosing between two males. The wings of both the successful and unsuccessful males were analyzed using morphometric software to see if there is a difference between them.

Kieran Guimond is a second-year student at Victoria College who is doing a double major in Neuroscience and Ecology and Evolutionary Biology, as well as minor in Immunology. He is currently in a EEB299 ROP.

Panel #5: Technologies and Techniques

3:05-3:45 PM EST

Chair : Professor Mark Solovey

Conorr Norquay, *An Unrealized History of Sound Film: Charles K. Cregier and the Talking Motion Picture Machine*

On February 18, 1907, a patent application was filed with the United States Patent Office that had the potential to catalyze the film industry's synchronized sound film innovations years before its perfection - yet this innovation was never patented, and the innovator's story has been lost to

time. This study aims to document how this device functioned and its history in the context of film sound technologies. In doing so, I will demonstrate how the Patent Office determined technological adoption and commercial exploitation, and therefore address historiographical concerns of how institutional confirmation of one's status as originator shapes the histories recorded.

Conorr Norquay is a third year student at University of Toronto pursuing a degree in Cinema Studies. In his free time, Conorr is enormously passionate about Bazinian theory and the intricacies of Canadian tax policy.

Brianna Davies, *With the Compliments of the Author: The Impact of Inscriptions in Museum Collections*

Once they enter a museum's collections, objects are elevated to relic status. Antique books especially are often behind glass or tucked away in an archive, and we tend to forget that these objects once had a life of their own. That rare first edition may have been someone's favourite book, a Christmas present, or a copy someone saved up months for. Book inscriptions offer us an insight into the past owners of these books and offer a new perspective beyond author, date of publication, and title. My research explores the benefits of dedicating time and research into book inscriptions for museums and their audiences. My research centres around Casa Loma's book collection and how a six-word inscription helped solve a mystery surrounding a portion of the collection's origins.

Brianna Davies is a fourth-year History major with minors in Material Culture and Book & Media Studies. In the fall, she will be entering iSchool's Master of Museum Studies Program.

Cecilia Zhehui Xie, *Zero-sum Mentality, Competition, and the University Environment: What Can We Do?*

How does thinking competitively affect one's wellbeing? Do extrinsic incentives, such as grades, conflict with intrinsic motivations? The research project is in three parts. First, I hope to understand the implication of the relationship between zero-sum mindset and undergraduates. Second, I wish to interview students and instructors about their experiences and opinions. Finally, I hope to relate the findings to other issues and broader themes. I hope to present that success is not an individualistic effort; although competition is often unavoidable, I believe we also need to rethink if this applies to all situations in the learning environment.

Cecilia Xie is a first-year student going into Contemporary Asian Studies, Literature and Critical Theory, and a minor in Classics. She is interested in positive psychology and its applications and, currently, she is working on a research project supervised by Professor Julia Forgie about the zero-sum mentality and the university environment.

Leila Tjiang, *The Impacts of Market Integration and Ethnicity on Food Security in the Peruvian Amazon*

The high prevalence of semi-subsistence livelihoods and relative isolation from the regional economies in the Peruvian Amazon create unique circumstances for household food availability, access, and stability. This research project situates food security within a wider web of relations, while focusing on market integration and ethnicity, to explore how a combination of social access determinants (kin networks and education, etc.) and environmental availability factors (flooding and land availability, etc.) shape household food security in the region. More specifically, regression and correlation analysis were used with census data collected by the PARLAP project (<https://parlap.geog.mcgill.ca/>).

Leila Tjiang is a fourth year student double majoring in Environmental Geography and Environmental Biology.

Research Day Prizes

Dean of Student's Social Impact Award (Two Awards)

E. J. Pratt Library Primary Source Research Prize

The Institute for the History and Philosophy of Science and Technology Award

Principal's Science Award

Victoria College Student Choice Award
(*Selected by event attendees*)