

THE FACULTY OF GRADUATE STUDIES PRESENTS

THREE MINUTE THESIS FINALS



MARCH 30, 2023, 7:00 - 9:00PM





EMCEE

COLLEEN BREADY

Weather Specialist

Colleen Bready [BA(Adv)/03] is the Weather Specialist for CTV News at noon, 5 and 6 and hosts the entertainment segment, "Spotlight." Born and raised in Winnipeg, she holds a Bachelor of Arts (Advanced) degree with a major in Political Studies from the University of Manitoba. Colleen started her career in broadcast journalism at 680 CJOB in 2005 and has been with CTV Winnipeg since 2011. Throughout her career she has covered a wide range of topics from politics, crime and courts to health and human interest stories for radio and television.

Three Minute Thesis (3MT®) is an international research communication competition for graduate students in a thesis-based program. The University of Manitoba 3MT is part of an overall strategy to highlight our graduate students,



PRIZES

DR. ARCHIE McNICOL PRIZE FOR FIRST PLACE **\$2,500**

UM RETIREES ASSOCIATION PRIZE FOR SECOND PLACE **\$1,250**

THIRD PLACE **\$750**

PEOPLE'S CHOICE AWARD **\$200**

2023 CHALLENGERS

HEAT 1

Cole Treyturik, Zayra Batun, Abhinav Tiwari, Daniel Schwade Araujo, Saeid Maghsoudi, Gabrielle Fontaine, Logesh Dhanapal, Ruwani Wimalasekara, Maria Baranowski, Harshani Hewage, Rasmita Chatterjee

HEAT 2

Vibhuti Arya, Abeer Zahra, Akshi Malik, Amanda Belanger, Janette Suherli, Shayna Giesbrecht, Matt Henderson, Brynne Blaikie, Mehrafarin Ashiri, Dorsa Jeddi, Samuel Ogunsola

HEAT 3

Julie Donahue, Amir Bani Saeed, Olubukola Olatosi, Samuel Lawal, Keshav Narayan Alagarsamy, Athalia Voisin, Alana Lamont, Michelle Morello, Jarrad Perron, Titus Olukitibi, Chenee Merchant, Ying Ying Lui

JUDGES

ANITA WORTZMAN

President, The Asper Foundation

DESTINY SEYMOUR

Founder, Indigo Arrows

JAMES SCHELLENBERG

Founder & CEO, Cubresa Inc.

FINALISTS



RASHMITA CHATTERJEE
BIOMEDICAL ENGINEERING, PH.D.
Advisor: Dr. Zahra Moussavi

Strengthening the brain's internal GPS as a means to battle Alzheimer's

Combining her passion for coding and neuroscience, Rashmita is designing an engaging virtual reality game as a navigation improvement tool in Alzheimer's patients. With a faulty internal GPS being one of the early signs of Alzheimer's, her research will explore the connections between neurological function and the human behaviour associated with the motivation to play the game. Her future career goals involve working in technology-based health care for aging populations in the future.



OLUBUKOLA OLATOSI
ORAL BIOLOGY, PH.D.
Advisor: Dr. Robert Schroth

Exploring strategies for implementing a culturally informed caries risk assessment tool used by non-dental primary care providers for young First Nations and Metis children in Manitoba.

With a greater focus on promoting early childhood oral health, Olubukola's research goal is to see a reduction in the incidence of early childhood caries among Indigenous Canadian children. Her research focuses on determining the strategies to implementing the novel Canadian Caries risk assessment tool and to provide guidelines for implementation to improve the oral health of Indigenous children. She completed a Master of Public Health at the University of Lagos, Nigeria and hopes to be an independent researcher. Her work will also have implications on the oral health of children in Canada and around the world.



DANIEL SCHWADE ARAUJO
APPLIED HEALTH SCIENCES, PH.D.
Advisor: Dr. Todd Duhamel

Metabolomics: New biomarkers of heart disease in older females.

After getting inspiration from a course while completing his master's degree, Daniel focused his research on the molecular mechanisms of exercise physiology. His research aims to identify new biomarkers of heart disease in older women and hopes to address this underrepresented population in heart disease research and improve the standard of care. Daniel holds a Bachelor of Science in physical education from the Federal University of Rio Grande do Norte, Brazil and completed his Master of Science in Kinesiology at UM.



BRYNNE BLAIKIE
PHYSICS AND ASTRONOMY, PH.D.
Advisor: Dr. Michael Gericke

100 Billion times smaller than an atom: Using electrons to search for new physics.

Discovering a new world of physical particles beyond what the eye can see, Brynne pursued research on the MOLLER experiment which uses high precision particle detectors to look for new physics processes on small scales. This skillset in particle physics integrates programming, data analysis, designing and engineering, all allowing her to explore new developments in the field. She completed her Bachelor of Science (honours) in Astrophysics at UM and her goal is to bring her expertise and passion for research to a national physics lab.

FINALISTS



HARSHANI HEWAGE
FOOD SCIENCE, PH.D.

Advisor: Dr. Nandika Bandara

Sustainable technologies for protein ingredient development and functionalization from Canadian crops.

Inspired by the world's rising demand for a healthy, green, and sustainable protein source, Harshani's research now explores new sustainable technologies for extracting and modifying the functionality and digestibility of protein ingredients from Canadian-grown pulse crops. Her research can contribute to finding green and healthy solutions to fulfill nutrition requirements in all diets around the world while championing for socioeconomic and environmental health. Harshani earned a Master of Philosophy in Food Science at the University of Peradeniya, Sri Lanka, and sees herself as a future academic at a postsecondary institution.



KESHAV NARAYAN ALAGARSAMY
PHYSIOLOGY AND PATHOPHYSIOLOGY, PH.D.

Advisor: Dr. Sanjiv Dhingra

Using personalised stem cell technology for heart regeneration.

Passionate about the ability of machines and materials to heal humans, Keshav is combining stem cell technology with nanotechnology to create personalised heart cells. His research focuses on the capacity to use stem cells and nanomaterials to regenerate a damaged heart after a heart attack, with the ultimate goal of allowing more heart disease patients to lead normal lives. He completed his Master of Engineering at the University of Cincinnati and hopes to be a future leader in the field of regenerative medicine.



SHAYNA GIESBRECHT
MICROBIOLOGY, M.SC.

Advisor: Dr. Michael Becker

Quantification of the prevalence of sexually transmitted blood-borne infections in Canadian wastewater samples.

Taking a leap from biological sciences to microbiology during the COVID-19 pandemic, Shayna wanted to study infectious diseases and redefine what it means to put the health of people first. Her research seeks to establish methods to use wastewater for tracking the incidence of sexually transmitted blood-borne infections, which will contribute meaningful information to infection outbreak prevention and response in the future. Shayna was inspired by Manitoba leaders during the pandemic who put the health of Manitobans' first and is driven to continue working in disease prevention at the government level helping smaller communities respond to infectious disease outbreaks.



AKSHI MALIK
PHYSIOLOGY AND PATHOPHYSIOLOGY, PH.D.

Advisor: Dr. Pawan K. Singal

The cardio-protective role of EMPA on Doxorubicin-induced heart failure.

With one in four cancer patients developing heart failure due to chemotherapy drugs, Akshi is working to eliminate this trade-off in cancer treatment. Her research focuses on understanding the mechanisms through which Doxorubicin, a chemotherapy drug, affects the hearts of cancer patients, as well as looking for a cardioprotective agent that can prevent Doxorubicin-induced heart failure. She will go on to look for a cardioprotective agent that can prevent heart failure associated with this drug. Akshi plans to work in clinical research and being the person on the ground turning biomedical research discoveries into real-world applications.

FINALISTS



DORSA JEDDI
BIOSYSTEMS ENGINEERING, M.SC.
Advisor: Dr. Chyngyz Erinbaev

Revolutionizing legume processing for future food security.

With food security issues continuing to affect millions of people around the world, Dorsa hopes to address these challenges with more sustainable resources. Her research focuses on finding optimum legumes' processing conditions to help improve nutritional value and customer acceptability. She completed her Bachelor's Degree in Food Machinery Engineering at the University of Tehran, Iran, and is striving to shape the future of food science at the academic and industrial level.



MICHELLE MORELLO
GENETIC COUNSELLING, M.SC.
Advisors: Jessica Hartley and Claudia Landry

Exploring the integration of Expanded Carrier Screening (ECS) within Canadian fertility clinics.

Choosing the field of genetic counselling, Michelle enjoys advocating for patients and helping them understand the implications of genetics. Her research explores how often, when, and the manner in which Canadian fertility providers are discussing Expanded Carrier Screening within their practice. Having been inspired by professionals in the field of assisted reproduction, Michelle hopes that her project will advocate for improved access to genetic services and counselling for fertility patients, and support Canada's health care providers.



JARRAD PERRON
BIOMEDICAL ENGINEERING, PH.D.
Advisor: Dr. Ji Hyun Ko

Data-driven identification of prodromal Alzheimer's disease.

Envisioning the success of Artificial Intelligence (AI) in practical medical applications, Jarrad's research uses AI on neuroimaging and clinical data to predict the onset of dementia in patients with mild cognitive impairment. His findings will improve the distinction between patient groups likely to develop dementia due to Alzheimer's disease and those who will not. Jarrad completed a Master of Science in Medical Physics at UM with the goal of pursuing a career specializing in using quantitative methods and AI-driven tools to transform the future of diagnostic imaging services.



GABRIELLE FONTAINE
PHYSICS AND ASTRONOMY, PH.D.
Advisor: Dr. Stephen Pistorius

Safe, portable, and low-cost breast cancer screening for First Nation and northern communities.

The lack of access to health care services remains an issue affecting Canada's First Nation and Northern communities, and Gabrielle is working to change this reality. With many tumours growing undetected for long periods of time, her research combines breast microwave sensing with artificial intelligence to innovate the future of cancer research. It delves into alternative safe, low-cost breast cancer screening methods that will address disproportionately high mortality rates in women in these areas. She completed her Master of Science in physics and astronomy at UM, and hopes to work at a cancer facility as a medical physicist.



DR. ARCHIE McNICOL PRIZE

Dr. Archibald (Archie) McNicol, Associate Dean in the faculty of Graduate Studies, passed away suddenly in December 2016. Dr. McNicol earned a BSc (Hons) and a PhD in pharmacology from the University of Glasgow and had been with the University of Manitoba since 1993 when he joined the department of oral biology in what was then the Faculty of Dentistry. He taught in the College of Dentistry, the School of Dental Hygiene and the College of Rehabilitation Sciences within the Rady Faculty of Health Sciences. His globally-recognized research focused on blood-clotting mechanisms and the function and dysfunction of human platelets.

Dr. McNicol was a gifted teacher and researcher who was an enthusiastic supporter of graduate students and of the Three Minute Thesis competition. To honour his legacy, the Dr. Archie McNicol Prize is awarded annually to the first place winner of the University of Manitoba's Three Minute Thesis Competition.



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