University of Lethbridge

NEWS RELEASE

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Three University of Lethbridge researchers appointed Canada Research Chairs

Dr. Stacey Wetmore, a professor in the Department of Chemistry & Biochemistry with expertise in computational chemistry, has been appointed a Tier 1 Canada Research Chair while Dr. Julie Young, a professor in the Department of Geography & Environment, and Dr. Trushar Patel, a professor in the Department of Chemistry & Biochemistry, have had their Tier 2 Canada Research Chairs renewed for another term.

Wetmore, Canada Research Chair in Computational Chemistry, will receive $1.4 million over seven years. Young, Canada Research Chair in Critical Border Studies, and Patel, Canada Research Chair in RNA and Protein Biophysics, will each receive $500,000 over five years. These chairs were part of a larger federal announcement on August 29 by the Honourable Randy Boissonnault, Minister of Employment, Workforce Development and Official Languages, on behalf of the Honourable Francois-Philippe Champagne, Minister of Innovation, Science and Industry, and the Honourable Mark Holland, Minister of Health. The announcement included investments of over $960 million to support over 4,700 researchers and research projects in Canada. The $133.7 million in funding for the Canada Research Chairs Program includes 82 new and 75 renewed Chairs.

“Congratulations to these talented recipients from all across the country who are doing the groundbreaking work that will contribute not only to Canada’s health and well-being but also to the world’s,” says Champagne. “Through this funding, the Government of Canada is investing in the next generation of researchers and inspiring them to continue to think outside the box and tackle the challenges of today and tomorrow.”

“Canada Research Chair appointments are highly competitive and reflective of the excellence of our faculty members in their chosen fields,” says Dr. Dena McMartin, vice-president (research). “The research done by Drs. Wetmore, Young and Patel has the potential to improve the quality of life for people all over the world.”

Wetmore uses computer simulations to help answer questions in chemistry. By using the methods of theoretical chemistry and powerful computers, the structure and properties of molecules, such as nucleic acids, can be calculated. Nucleic acids like DNA and RNA are the most basic molecules of life as they store and transmit genetic information. During the global pandemic, RNA vaccines became a household name. They were made possible due to the introduction of modifications that enhance RNA stability in cells. In nature, nucleic acids are modified to control gene expression and build properly functioning proteins. However, knowledge about how modifications change the structure and function of nucleic acids and why nature introduces modifications is lacking.

“I use computer modelling to find answers and gain a fundamental understanding of the chemistry of modified nucleic acids,” says Wetmore. “This work is an important step toward understanding human diseases, such as cancer, diabetes and neurodegeneration, that are associated with modification errors.”

In addition to building basic knowledge, her work will ultimately help unlock the ability to treat many diseases. Calculations using computational chemistry methods are critical tools for solving these problems as they are powerful predictors of experimental outcomes and provide information to guide future experiments.

Young’s research examines the impact of Canadian border control policies and practices. The border closures of the COVID-19 pandemic resulted in the shutdown of most refugee and asylum programs. People in need of protection were directed or pushed back into uncertain and insecure situations.

“There is a need to account for the stories and situations of people who continue to be prevented from arriving by Canada’s policies, while also considering the treatment of people whose entry is permitted but under precarious conditions, such as many temporary foreign workers,” says Young. “With this renewal, I plan to analyze the impacts of the pandemic and subsequent border management policies on migration patterns and experiences, expand the network of those engaged in border studies through my collaboration with the Lethbridge Border Studies Group, and mentor students in the ethical, methodological, and practical considerations of qualitative and community-engaged research through various projects, including with colleagues in the Community Bridge Lab.”

Using a feminist geopolitical approach, Young’s research program will look at the lived experiences of border control practices to gauge the impact of such policies.

Patel focuses his research on the interactions between human proteins and viral nucleic acids with the goal of finding ways to interrupt the viral replication process by using sophisticated structural-biophysical techniques. Emerging and re-emerging viral outbreaks are responsible for millions of deaths and impose a severe financial burden on health-care systems. Ultimately, his research can help pave the way for the development of antiviral treatments for diseases caused by the hepatitis B virus and Flaviviruses such as Dengue, Zika and West Nile viruses.

“I plan to continue unravelling the principles underlying viral nucleic acids-human protein interactions during viral infections,” says Patel. “I intend to focus mainly on Flaviviral and hepatitis B viral systems, to study the structures of viral nucleic acids and investigate how nucleic acids interact with human host proteins.”

Patel will also explore the antiviral activities of therapeutic molecules developed in the lab and find ways to optimize their efficiency.

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Our University’s Blackfoot name is Iniskim, meaning Sacred Buffalo Stone. The University is located in traditional Blackfoot Confederacy territory. We honour the Blackfoot people and their traditional ways of knowing in caring for this land, as well as all Indigenous Peoples who have helped shape and continue to strengthen our University community.