



FACULTY OF EDUCATION PROFESSOR RESEARCHES TEACHING AND LEARNING SCIENCE

Dr. Katarin MacLeod's research is focused on the broad topic of science education; more specifically STEM (Science, Technology, Engineering and Mathematics) education and PER (Physics Education Research). Her work has appeared in a wide variety of publications including the *Canadian Journal of Physics*, the *European Journal of Physics Education*, the *Journal of Workplace Rights*, and *Physics Education*. Among the courses she has taught at StFX are "Critical Research Literacy in Education" and "Assessment in Mathematics" at the graduate level; and "Curriculum and Instruction in Secondary Science Education," "Teaching Mathematics in Middle School," and "Assessment of Learning" within the Bachelor of Education program. Dr. MacLeod also initiated and delivered "Teaching and Learning in the Physical Sciences" within the Bachelor of Science program, a course her students report helped them to make important connections between scientific theory, STEM, and real world application.

In her 2016 book *The Physics Educator: Tacit Praxes and Untold Stories*, co-edited with **Dr. Thomas Ryan** from Nipissing University, Dr. MacLeod provides important insights into physics education initiatives at the tertiary level. The peer-reviewed book captures the narratives of 10 post-secondary professors who currently teach physics or engineering undergraduate courses or physics education courses. "It is a global sample—including contributors from StFX—of physicists and physics educators who share with the reader their experiences of teaching physics, the challenges that they have faced, and how they have overcome these challenges in order to better engage students as they learn physics. Each chapter author presents a unique situation that has elements of transferability to the reader's own classroom situation," Dr. MacLeod says. *The Physics Educator* is not meant as a teaching manual, she says; rather, "it instructs by storytelling and has an important set of messages" for the reader to consider in terms of the pedagogical processes of teaching and learning physics and other courses in higher education. Dr. MacLeod's conceptualization of a text that detailed the teaching practices of physicists and physics educators began shortly after the completion of her doctoral dissertation in 2012. She says the need for such content was confirmed after working with physicists from StFX, Dublin City University, and the University of Queensland, and through their conversations, the idea and interest grew.