



MASTER OF EDUCATION IN CURRICULUM AND INSTRUCTION
COHORT: Secondary Science Education
July 2017 – July 2019

The StFX Faculty of Education is proposing to offer a province-wide Master of Education in Curriculum and Instruction with a focus in Secondary Science Education, for qualified in-service teachers (grades 7-12) and administrators beginning in the summer of 2017. This cohort is meant to enable educators to develop their curricular planning and instructional leadership abilities and capacities within their respective school communities in relation to science education, Science Inquiry, STEM, Makerspaces, Coding, Science Literacy and STEM career literacy. Moreover, this cohort is also meant to support educators in developing research competencies and literacy within these same content areas.

This cohort is designed for educators to explore new approaches for science teaching and learning across and between all science disciplines, to consider their effective implementation, and to assess how their implementation impacts teaching and learning in 21st century classrooms. This program will advance the capabilities of participants to offer exceptional educative experiences to secondary students in science education.

Graduate students will be required to attend a campus-based program during the month of July 2017 to complete the first two courses. The face-to-face (F2F) residency has proven to be a very successful part of the cohort experience, serving as both an introduction to graduate studies and building the learning community within the cohort. Further, these courses will be based not only in a traditional classroom setting but will connect the graduate student to an outdoor, experiential science component which can be replicated or adapted to the graduate student's home context. All subsequent courses will be offered via a synchronous learning platform (Collaborate). The 593 course is a capping experience that allows graduate students to develop a deepened understanding of an area of professional interest that has relevance to the advancement of a specific aspect of science education in their school or school board.

The tentative schedule of courses is included below:

Location	Summer 2017	Fall 2017	Winter 2018	Spring 2018	Summer 2018	Fall 2018	Winter 2019	Spring 2019	Summer 2019
Online (Collaborate)		576	505	527	578 518	508	532	569 593	536 593 (capping day)
On Campus	534 520E								

Information and Admission Procedures

Applications for this program will be accepted until January 30, 2017.

The application information can be found at

http://sites.stfx.ca/continuingeducation/master/application_forms.

For additional StFX admission inquiries please contact med@stfx.ca.

***Please note on the application that you are applying to the Master of Education in Curriculum with a focus on Science Education**

Course Information

Course	Title
EDUC 534	Introduction to Foundations of Education: Students are asked to critically examine their own practice and its context. Issues of power and privilege as they operate in the field of education are central unifying themes of the course. Educators will (re)think their pivotal role as teachers in science education, alongside larger issues of equity and social justice, connecting to the notion of “ways of knowing” and the role of Western Science within a global context.
EDUC 520E	Current Research in Curriculum: Science Education: This course critically examines key strands in science education (biology, environmental, chemistry, physics, geology, and astronomy) and current and emerging issues such as global warming, STEM/STEAM, and coding. Students will explore in detail the theoretical underpinnings of science education and practical implications of how this research informs current educational practices. This is a field-based course with the majority of the course not held in a traditional classroom or laboratory setting.
EDUC 576	Specific Issues in Curriculum Development: This course will examine selected contemporary science educational controversies and explore their implications for science curriculum decision-making. Students will examine current issues and problems including connecting with community members and tradespeople, flipped classrooms, technology within the science classroom, and issues with laboratory science versus Makerspaces.
EDUC 505	Introduction to Educational Research: This course introduces approaches to educational research, particularly as it relates to science education. It also includes a basic introduction to graduate student writing and literature review methodology.
EDUC 527	Principles of Learning: This course examines theories of learning and development and their implication for instruction. Special attention to examples in science education such as inquiry-based, experiential learning and contextualization will be explored.
EDUC 578	Computers in Mathematics and Science Education: This course examines approaches for using technology to teach science. Examples of how technology, for example Makerspaces, robotics, coding, and simulations can impact science learning and teaching.
EDUC 518	Assessment for/of/as Learning: This course explores issues surrounding the assessment for and of learning in science classrooms. Participants will gain skills necessary to implement a growth mindset perspective in their own teaching and add to their toolbox of formative and summative assessment tasks.
EDUC 508	Critical Research Literacy in Education: This course examines how to critically read, interpret, and evaluate science-based educational research. Graduate students will have the opportunity to explore and understand the research literature in relation to their particular interest with regards to science. In this course students will develop the research plan for their final capping experience (EDUC 593).
EDUC 532	Curriculum Theory: In this course, the main ideas of major curriculum theorists will be examined and the implications of each position for program development in as it relates to science education. Notions of emergent curriculum and experiential curriculum will be explored.
EDUC 569B	Selected Topics in Education—Models in Science: Science teaching requires the use of models to convey meaning. Students will explore the role the models (e.g. conceptual, physical, dynamic) and model building (design, coding, or traditional) has on science learning and teaching.
EDUC 536	Program Development: This course examines the main ideas of major curriculum theorists and the implications of each position for program development related to culturally responsive pedagogy in science education. Connection to traditional knowledge, Indigenous knowledge and other ways of knowing will be revisited as they connect to the current science curriculum.
EDUC 593	Directed Study: Capping Experience All students enrolled in EDUC 593 are expected to complete a capping experience and to share their work with their peer group, as part of a culmination to the program. Using action research, this capping experience allows graduate students to develop a deepened understanding of an area of professional interest that has personal relevance to the advancement of enhancing science learning in their educational context.