UNIVERSITY OF THE FRASER VALLEY

ORIGINAL COURSE IMPLEMENTATION DATE: May 2013
REVISED COURSE IMPLEMENTATION DATE: September 2023
COURSE TO BE REVIEWED (six years after UEC approval)**:** February 2029
Course outline form version: 09/08/2021

OFFICIAL UNDERGRADUATE COURSE OUTLINE FORM

Note: The University reserves the right to amend course outlines as needed without notice.

Course Code and Number: EDUC 458	**Number of Credits:** 1.5 Course credit policy (105)
Course Full Title: Investigations into Secondary Mathematics **Course Short Title:** Secondary Mathematics	
Faculty: Faculty of Education, Community, & Human Dev.	**Department (or program if no department):** Teacher Education

Calendar Description:

Builds on pedagogical concepts and skills necessary for the effective teaching of secondary mathematics using the B.C. Ministry of Education curriculum, with an emphasis on unit planning that involves mathematical reasoning, conceptual understanding, problem solving, and communication. Connections among topics, representations, and the broader contexts in which they are situated will be explored. Indigenous resources, pedagogies, and content will be included, with an examination of how mathematics can be used to address equity, diversity, and inclusion issues.

Prerequisites (or NONE):	Admission to the Bachelor of Education and EDUC 435.
Corequisites (if applicable, or NONE):	
Pre/corequisites (if applicable, or NONE):	

Antirequisite Courses *(Cannot be taken for additional credit.)*

Former course code/number:

Cross-listed with:

Equivalent course(s):

(If offered in the previous five years, antirequisite course(s) will be included in the calendar description as a note that students with credit for the antirequisite course(s) cannot take this course for further credit.)

Typical Structure of Instructional Hours

Lecture/seminar	8
Tutorials/workshops	14
Total hours	**22**

Scheduled Laboratory Hours

Labs to be scheduled independent of lecture hours: ☒ No ☐ Yes

Course Details

Special Topics course: **No**

(If yes, the course will be offered under different letter designations representing different topics.)

Directed Study course: **No**

(See policy 207 for more information.)

Grading System: **Credit/No Credit**

Delivery Mode: **May be offered in multiple delivery modes**

Expected frequency: **Annually**

Maximum enrolment (for information only)**: 32**

Prior Learning Assessment and Recognition (PLAR)

PLAR cannot be awarded for this course because:

Connected to practicum

Transfer Credit *(See **bctransferguide.ca**.)*

Transfer credit already exists: **Yes**

Submit outline for (re)articulation: **No**

(If yes, fill in transfer credit form.)

Department approval	**Date of meeting:**	December 8, 2021
Faculty Council approval	**Date of meeting:**	December 2, 2022
Undergraduate Education Committee (UEC) approval	**Date of meeting:**	February 24, 2023

Learning Outcomes *(These should contribute to students' ability to meet program outcomes and thus Institutional Learning Outcomes.)*

Upon successful completion of this course, students will be able to:

1. Apply strategies found in the B.C curriculum for various mathematics courses taught at the secondary level.
2. Apply constructivist learning theory for designing learning activities in secondary mathematics that foster mathematical reasoning, conceptual understanding, problem solving, and communication.
3. Investigate connections among topics, representations, and the broader contexts in which they are situated (e.g., mathematical, historical, socio-cultural).
4. Design a unit plan in mathematics, including activities that engage pupils in cooperative learning, critical thinking, and an awareness of the contextual and socio-cultural nature of mathematics and its applications.
5. Use strategies for on-going assessment for pupils' understanding of content, skills, and problem solving, addressing a wide variety of student's learning needs.
6. Integrate mathematics with curriculum activities (e.g., in science, social studies) as possible.
7. Integrate Indigenous resources, content, and pedagogy into lesson plans.
8. Utilize the teaching of mathematical concepts to address issues related to equity, diversity, and inclusion.

Recommended Evaluation Methods and Weighting *(Evaluation should align to learning outcomes.)*

Assignments:	100%	%	%
	%	%	%

Details:

Assignments: unit plan (40%), in class teaching (40%), group presentation (20%).

NOTE: The following sections may vary by instructor. Please see course syllabus available from the instructor.

Texts and Resource Materials *(Include online resources and Indigenous knowledge sources. Open Educational Resources (OER) should be included whenever possible. If more space is required, use the Supplemental Texts and Resource Materials form.)*

	Type	Author or description	Title and publication/access details	Year
1.	Textbook	Liljedahl	Building Thinking Classrooms in Mathematics: Grades K - 12	2020
2.	Online resource	Ministry of Education	BC's Curriculum: Mathematics	2021
3.				
4.				
5.				

Required Additional Supplies and Materials *(Software, hardware, tools, specialized clothing, etc.)*

Course Content and Topics

- How constructivist learning theory influences classroom practice
- Connections among topics, representations, and the broader contexts in which they are situated (e.g., mathematical, historical, socio-cultural).
- Use of manipulatives or representations, activities, and strategies to promote mathematical reasoning, understanding, and problem solving
- Cooperative learning and group work strategies for student engagement
- Application of mathematics into other subject areas, such as science and social studies, to show its relevancy
- Unit planning in mathematics
- B.C. Secondary Mathematics Curriculum for various courses taught in the standard secondary school
- Using a range of on-going assessment strategies for mathematics activities
- Indigenous resources, pedagogies, and content available for the teaching of mathematics
- Utilizing mathematics to address issues related to equity, diversity, and inclusion