ORIGINAL COURSE IMPLEMENTATION DATE: March 1992
REVISED COURSE IMPLEMENTATION DATE: January 2022
COURSE TO BE REVIEWED (six years after UEC approval): June 2027
Course outline form version: 05/18/2018

OFFICIAL UNDERGRADUATE COURSE OUTLINE FORM

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

Course Code and Number: MATH 105	**Number of Credits:** 4 Course credit policy (105)

Course Full Title: Math for the Elementary School Teacher
Course Short Title: Math for Elementary Teachers
(Transcripts only display 30 characters. Departments may recommend a short title if one is needed. If left blank, one will be assigned.)

Faculty: Faculty of Science	**Department (or program if no department):** Mathematics and Statistics

Calendar Description:

Designed for students interested in teaching at the elementary level. Students will work towards developing a profound understanding of fundamental mathematics through physical, pictorial, and symbolic representations. Students will be provided with direct experiences of elementary mathematics through examples of young learners' mathematical methods. Topics include problem solving strategies, sets, numeration systems, conceptualizations and arithmetic of rational numbers, number theory, ratios, and Euclidean geometry.

Note: MATH 105 is a mathematics course aimed at developing mathematical ability and is not a course in the methods of teaching.

Prerequisites (or NONE):	One of the following: (C or better in one of Principles of Mathematics 11, Pre-calculus 11, Foundations of Mathematics 12, or MATH 085) or (C+ or better in Applications of Mathematics 12) or (B or better in one of Foundations of Mathematics 11, Calculus 12, Geometry 12, or Statistics 12) or (Pre-calculus 12) or (any UFV MATH course numbered 092 or higher) or (a score of 17/25 or better on Part A of the MSAT).
Corequisites (if applicable, or NONE):	NONE
Pre/corequisites (if applicable, or NONE):	NONE

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

Former course code/number:

Cross-listed with:

Dual-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.)

Special Topics *(Double-click on boxes to select.)*

This course is offered with different topics:

☒ No   ☐ Yes *(If yes, topic will be recorded when offered.)*

Independent Study

If offered as an Independent Study course, this course may be repeated for further credit: *(If yes, topic will be recorded.)*

☒ No ☐ Yes,   repeat(s) ☐ Yes, no limit

Transfer Credit

Transfer credit already exists: *(See **bctransferguide.ca**.)*

☐ No ☒ Yes

Submit outline for (re)articulation:

☒ No ☐ Yes *(If yes, fill in transfer credit form.)*

Typical Structure of Instructional Hours

Lecture/seminar hours	60
Tutorials/workshops	
Supervised laboratory hours	
Experiential (field experience, practicum, internship, etc.)	
Supervised online activities	
Other contact hours:	
Total hours	**60**

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

Grading System

☒ Letter Grades   ☐ Credit/No Credit

Maximum enrolment (for information only): 36

Expected Frequency of Course Offerings:

Fall & Winter semesters

Department / Program Head or Director: Ian Affleck		**Date approved:**	January 25 2021
Faculty Council approval		**Date approved:**	April 30, 2021
Dean/Associate VP: Lucy Lee		**Date approved:**	April 30, 2021
Campus-Wide Consultation (CWC)		**Date of posting:**	n/a
Undergraduate Education Committee (UEC) approval		**Date of meeting:**	June 18, 2021

Learning Outcomes:

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

1. Demonstrate a conceptual understanding of the basic laws of arithmetic and the properties of geometry through the evaluation of young learners' mathematical methods.
2. Employ problem-solving strategies in order to structure clear and concise solutions to problems related to the elementary school curriculum.
3. Develop number sense through mental calculation and estimation.
4. Explain algorithms for arithmetic operations through the use of physical manipulatives and place value.
5. Create and analyze story problems and models that represent mathematical concepts in the elementary curriculum.
6. Communicate their mathematical knowledge effectively through verbal, pictorial, physical, and symbolic representations.
7. Adopt a growth mindset for mathematics teaching and learning.
8. Justify the use of physical manipulatives to enhance student learning of mathematics in the elementary curriculum.
9. Advocate for the role of society and community in the development of mathematics and mathematics learning.
10. Analyze cultural approaches to mathematics through Indigenous number systems.

Prior Learning Assessment and Recognition (PLAR)

☒ Yes   ☐ No, PLAR cannot be awarded for this course because

Typical Instructional Methods *(Guest lecturers, presentations, online instruction, field trips, etc.; may vary at department's discretion.)*

Lectures are balanced with problem sessions and group activities. Evaluation will include tests, quizzes, assignments, and a three-hour comprehensive exam.

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

Typical Text(s) and Resource Materials *(If more space is required, download Supplemental Texts and Resource Materials form.)*

The text is chosen by a departmental curriculum committee.

	Author (surname, initials)	Title (article, book, journal, etc.)	Current ed.	Publisher	Year
1.	Musser, Burger, Peterson.	Mathematics for Elementary Teachers, 10th edition	☐	Wiley	2013
2.			☐		
3.			☐		
4.			☐		
5.			☐		

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

Compass and protractor.

Typical Evaluation Methods and Weighting

Final exam:	40%	Assignments:	15%	Field experience:	%	Portfolio:	%
Midterm exam:	%	Project:	10%	Practicum:	%	Other:	%
Quizzes/tests:	35%	Lab work:	%	Shop work:	%	Total:	100%

Details (if necessary): Students must achieve at least 40% on the final exam to receive credit for this course.

Typical Course Content and Topics

Patterns and problem-solving strategies
Sets and Venn diagrams
Whole number operations
Numeration systems
Algorithms in other bases
Primes, composites, and divisibility
Fractions, decimals, ratio and proportion, and percent
Operations with integers, rational numbers, and irrational numbers
Geometry of polygons and polyhedra
Measurement including perimeter and area
Congruence and similarity
Transformations and tessellations