	School of Arts & Science **Department of Mathematics & Statistics** **MATH 142** **Numbers & Algebra for Ed.** **FALL 2016**

COURSE OUTLINE

The course description is online @ http://camosun.ca/learn/calendar/current/web/math.html

Ω   *Please note: the College electronically stores this outline for five (5) years only.*
   *It is **strongly recommended** you keep a copy of this outline with your academic records.*
   You will need this outline for any future application/s for transfer credit/s to other colleges/universities.

1.   Instructor Information

(a)	Instructor:	Stephen Benecke		
(b)	Office Hours:	10:00-12:00		
(c)	Location:	E254		
(d)	Phone:	250-370-3493	Alternative Phone:	NA
(e)	Email:	beneckes@camosun.bc.ca		
(f)	Website:	D2L		

2.   Intended Learning Outcomes
(No changes are to be made to these Intended Learning Outcomes as approved by the Education Council of Camosun College.)

Upon completion of this course a student will be able to:

1. Give examples of the role quantities play in our lives and how quantities are expressed.
2. Explain how to add, subtract and convert values in different bases.
3. Explain children's ways of adding, subtracting, multiplying and dividing.
4. Perform mental computation and computational estimation in a variety of ways.
5. Interpret the meaning of fraction symbol, and compute with fractions.
6. Define and recognize rational numbers, irrational numbers, real numbers, and operations with them.
7. Use ratios, proportions, and percentages to solve a variety of problems.
8. Find prime numbers less than a given number, find the prime factorization of a number, and use divisibility tests to determine whether a number is prime.
9. Find greatest common factor and least common multiples of sets of numbers.
10. Solve problems involving basic algebra, arithmetic and geometric sequences.
11. Explain mathematical concepts at an elementary school level.

3.   Required Materials

(a) Texts

(b) Other

SEE BELOW

4.   Course Content and Schedule
(This section can include: class hours, lab hours, out of class requirements and/or dates for quizzes, exams, lectures, labs, seminars, practicums, etc.)

SEE BELOW

5.   Basis of Student Assessment (Weighting)
(This section should be directly linked to the Intended Learning Outcomes.)

(a) Assignments

(b) Quizzes

SEE BELOW

(c) Exams

(d) Other (e.g., Attendance, Project, Group Work)

6. Grading System

(<u>No</u> changes are to be made to this section unless the Approved Course Description has been forwarded through the Education Council of Camosun College for approval.)

Standard Grading System (GPA)

Percentage	Grade	Description	Grade Point Equivalency
90-100	A+		9
85-89	A		8
80-84	A-		7
77-79	B+		6
73-76	B		5
70-72	B-		4
65-69	C+		3
60-64	C		2
50-59	D	Minimum level of achievement for which credit is granted; a course with a "D" grade cannot be used as a prerequisite.	1
0-49	F	Minimum level has not been achieved.	0

Temporary Grades

Temporary grades are assigned for specific circumstances and will convert to a final grade according to the grading scheme being used in the course. See Grading Policy E-1.5 at **camosun.ca** for information on conversion to final grades, and for additional information on student record and transcript notations.

Temporary Grade	Description
I	*Incomplete*: A temporary grade assigned when the requirements of a course have not yet been completed due to hardship or extenuating circumstances, such as illness or death in the family.
IP	*In progress*: A temporary grade assigned for courses that, due to design may require a further enrollment in the same course. No more than two IP grades will be assigned for the same course. *(For these courses a final grade will be assigned to either the 3rd course attempt or at the point of course completion.)*
CW	*Compulsory Withdrawal:* A temporary grade assigned by a Dean when an instructor, after documenting the prescriptive strategies applied and consulting with peers, deems that a student is unsafe to self or others and must be removed from the lab, practicum, worksite, or field placement.

7. Recommended Materials or Services to Assist Students to Succeed Throughout the Course

LEARNING SUPPORT AND SERVICES FOR STUDENTS

There are a variety of services available for students to assist them throughout their learning. This information is available in the College calendar, at Student Services, or the College web site at camosun.ca.

STUDENT CONDUCT POLICY

There is a Student Conduct Policy **which includes plagiarism**. It is the student's responsibility to become familiar with the content of this policy. The policy is available in each School Administration Office, at Student Services, and the College web site in the Policy Section.

ADDITIONAL COMMENTS AS APPROPRIATE OR AS REQUIRED

Mathematics 142
Numbers and Algebra for Ed
Course Outline

Calendar Description:
Designed for prospective elementary school teachers, this course provides students with a solid grounding in fundamental mathematical methods and concepts with which to teach math at an elementary school level. Topics include: reasoning about quantities, numeration systems and their properties, numerical operations with applications, mental computation and estimation, meaning for fractions and computing with fractions, multiplicative comparisons and reasoning, the set of real numbers and its subsets, elementary number theory, and basic algebra.

To find where this course transfers, check the *BC Transfer Guide*

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Offered:	Fall
Credits:	4
Hours:	5 lecture hours per week for 14 weeks
Prerequisites:	"C" in Principles of Math 11, or Pre-calculus 11, or Foundations of Math 11, or Applications of Math 12, or MATH 073, or MATH 137; **or** "C+" in either MATH 135 or MATH 072; **or** assessment
Exit Grade:	A grade of at least **C** (60%) is required for entry into most university education programs.

Intended Learning Outcomes: The Intended Learning Outcomes for this course, as approved by the Education Council, are as follows. Upon completion of this course the student will be able to:

1. Give examples of the role quantities play in our lives and how quantities are expressed.
2. Explain how to add, subtract and convert values in different bases.
3. Explain children's ways of adding, subtracting, multiplying and dividing.
4. Perform mental computation and computational estimation in a variety of ways.
5. Interpret the meaning of fraction symbols, and compute with fractions.
6. Define and recognize rational numbers, irrational numbers, real numbers, and operations with them.
7. Use ratios, proportions, and percentages to solve a variety of problems.
8. Find prime numbers less than a given number, find the prime factorization of a number, and use divisibility tests to determine whether a number is prime.
9. Find the greatest common factor and least common multiples of sets of numbers.
10. Solve problems involving basic algebra, arithmetic and geometric sequences.
11. Explain mathematical concepts at an elementary school level.

Suggested Materials:

- *Reconceptualizing Mathematics for Elementary School Teachers* by Judith Sowder, Larry Sowder, and Susan Nickerson. Freeman, 2014.
- *Investigating Patterns* by Jill Britton, Math 142 card purchased through bookstore
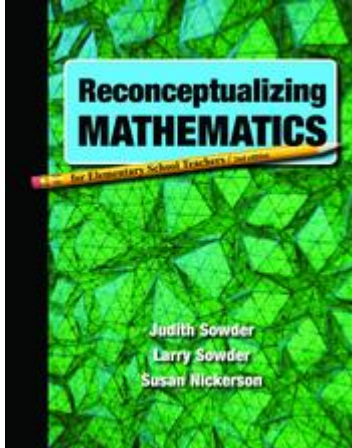
Course Content: **Chapters**

1. Reasoning About Quantities
2. Numeration Systems
3. Understanding Whole Number Operations
4. Some Conventional Ways of Computing
5. Using Numbers in Sensible Ways
6. Meaning for Fractions
7. Computing with Fractions
8. Multiplicative Comparisons and Multiplicative Reasoning
9. Ratios, Rates, Proportions, and Percents
10. Integers and Other Number Systems
11. Number Theory
12. What's Algebra

Basis of Student Assessment (Weighting)

(a) Quizzes: 10%
(b) Midterm Tests: 40%
(c) Final Examination: 50%
The final exam will cover the entire course and will be 3 hours long.

Standard Grading System (GPA):

Percentage	Grade	Description	Grade Point Equivalency
90-100	A+		9
85-89	A		8
80-84	A-		7
77-79	B+		6
73-76	B		5
70-72	B-		4
65-69	C+		3
60-64	C		2
50-59	D	Minimum level of achievement for which credit is granted; a course with a "D" grade cannot be used as a prerequisite.	1
0-49	F	Minimum level has not been achieved.	0

For information on Camosun College's grading policy, see Sec E-1.5 on the policy webpage camosun.ca/about/policies/policies.html.