



**DEPARTMENT OF SCIENCE**

**COURSE OUTLINE – WINTER 2018**

**MA1600 A3: Higher Arithmetic – 3 (3-1-0) UT 15 Weeks, 60 Hours**

**INSTRUCTOR:** Tom McLeister      **PHONE:** 780-539-2961  
**OFFICE:** J212      **E-MAIL:** tmcleister@gprc.ab.ca  
**OFFICE HOURS:** MTR 10:00 -11:00      F 11:30-12:30

**CALENDAR DESCRIPTION:** Elementary Number Theory, Numeration Systems, Number Systems and Elementary Probability Theory are included in this course.

**PREREQUISITE:** Mathematics 30-1 or equivalent or Mathematics 30-2 or equivalent

**REQUIRED TEXT/RESOURCE MATERIALS:** Musser, Peterson, Burger: Mathematics for Elementary Teachers, 10<sup>th</sup> Edition, Wiley 2014

**DELIVERY MODE(S):**

Lectures:      M 11:30-12:50      F 10:00-11:20      J227  
Seminar:      T 11:30-12:20      J202

**COURSE OBJECTIVES:** This course is designed to provide students with a broader and deeper understanding of the mathematics underlying the elementary school curriculum. An emphasis will be placed on problem-solving and non-calculator based techniques.

**LEARNING OUTCOMES:**

At the end of the course, students will be able to:

- Apply and identify a variety of strategies for solving (mathematical) problems
- Recognize number patterns, including arithmetic and geometric sequences, and work with corresponding formulas in problem-solving applications
- Apply basic concepts and constructions of set-theory and use Venn diagrams to depict set relationships
- Count and perform basic arithmetic operations (addition, subtraction, multiplication and division) in non-standard base number systems
- Test for divisibility and primality, factor composite numbers, calculate greatest common divisors and least common multiples using multiple techniques
- Represent a real number on a number line, perform standard operations on real numbers (rational + irrational numbers), and order a set of real numbers
- Reduce rational number expressions to simplest form following rules for the order of operations and the field properties of the rational numbers

- Apply rules for operations with decimals and rounding
- Convert a rational number to a (terminating/repeating) decimal and vice versa
- Simply square roots and approximate the square root of a number using the Babylonian method
- Solve and simplify linear equations and inequalities
- Solve problems involving ratios, proportion and percent
- Simplify rational exponential expressions, use scientific notation and absolute value

**TRANSFERABILITY:**

University of Alberta, University of Calgary, University of Lethbridge, Athabasca University  
 Augustana Faculty, University of Alberta, Concordia University College, Grant MacEwan University,  
 Other (transfers in combination with other courses or to other institutions)

**\*Warning:** Although we strive to make the transferability information in this document up-to-date and accurate, **the student has the final responsibility for ensuring the transferability of this course to Alberta Colleges and Universities.** Please consult the Alberta Transfer Guide for more information. You may check to ensure the transferability of this course at Alberta Transfer Guide main page <http://www.transferralberta.ca> or, if you do not want to navigate through few links, at <http://alis.alberta.ca/ps/tsp/ta/tbi/onlineSearch.html?SearchMode=S&step=2>

**\*\* Grade of D or D+ may not be acceptable for transfer to other post-secondary institutions. Students are cautioned that it is their responsibility to contact the receiving institutions to ensure transferability**

**EVALUATIONS:**

- Assignments 20%
- Midterms 40% (Friday March 2 and Friday April 13)
- Final Exam 40% (April 16-April 26 including Saturdays and evenings)

It is the student’s responsibility to be available to write the final exam at the scheduled time.

Writing early is not permitted.

**GRADING CRITERIA:**

Please note that most universities will not accept your course for transfer credit **IF** your grade is **less than C-**.

Alpha Grade	4-point Equivalent	Percentage Guidelines	Alpha Grade	4-point Equivalent	Percentage Guidelines
A+	4.0	90-100	C+	2.3	67-69
A	4.0	85-89	C	2.0	63-66
A-	3.7	80-84	C-	1.7	60-62
B+	3.3	77-79	D+	1.3	55-59
B	3.0	73-76	D	1.0	50-54
B-	2.7	70-72	F	0.0	00-49

**COURSE SCHEDULE/TENTATIVE TIMELINE:** We will cover approximately chapters 1-9 in the textbook.

**STUDENT RESPONSIBILITIES:** Regular attendance and participation (including homework) is required for the successful completion of this course. Assignments must be handed in on time, and tests/exams must be written on the days announced in class. If an emergency prevents a student from writing a test/exam on the scheduled day, the student must contact the instructor immediately to make other arrangements. Otherwise, the student will receive a zero grade for that component of the course.

**STATEMENT ON PLAGIARISM AND CHEATING:**

Cheating and plagiarism will not be tolerated and there will be penalties. For a more precise definition of plagiarism and its consequences, refer to the Student Conduct section of the College Admission Guide at <http://www.gprc.ab.ca/programs/calendar/> or the College Policy on Student Misconduct: Plagiarism and Cheating at <http://www.gprc.ab.ca/about/administration/policies/>

\*\*Note: all Academic and Administrative policies are available on the same page.