DEPARTMENT OF SCIENCE

COURSE OUTLINE – FALL 2016

MA1600 A2/B2: Higher Arithmetic – 3 (3-1-0) UT
60 Hours for 15 Weeks

INSTRUCTOR:	Dr. Brian Redmond	**PHONE:**	780-539-2093
OFFICE:	J206	**E-MAIL:**	bredmond@GPRC.ab.ca

OFFICE HOURS: T/R 10-11:30 AM

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:
Miller, Heeren, Hornsby, Heeren: Mathematical Ideas 13th Edition, Pearson, 2016

DELIVERY MODE(S): This is a lecture based course.

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.transferalberta.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:

- Worksheets 20%
- Midterm 20% (x2)
- Final Exam (cumulative) 40%

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	95-100	C+	2.3	66-69
A	4.0	90-94	C	2.0	62-65
A-	3.7	85-89	C-	1.7	58-61
B+	3.3	80-84	D+	1.3	55-57
B	3.0	75-79	D	1.0	50-54
B-	2.7	70-74	F	0.0	00-49

COURSE SCHEDULE/TENTATIVE TIMELINE:

Week 1	Fri. Sept. 2	first day of class
Week 2	Sept. 5-9	Mon. Sept. 5 Labour Day – College closed
Week 3	Sept. 12-16	
Week 4	Sept. 19-23	
Week 5	Sept. 26-30	
Week 6	Oct. 3-7	
Week 7	Oct. 10-14	Mon. Oct. 10 Thanksgiving Day – College closed
Week 8	Oct. 17-21	**Mon. Oct 17 – Midterm Exam 1**
Week 9	Oct. 24-28	Wed. Oct. 26 Last day to withdraw with permission
Week 10	Oct. 31-Nov. 4	
Week 11	Nov. 7-11	Nov 10/11 Fall break/Remenbrance Day
Week 12	Nov. 14-18	
Week 13	Nov. 21-25	**Fri. Nov. 25 – Midterm Exam 2**
Week 14	Nov. 28-Dec. 2	
Week 15	Monday, Dec. 5	Last day of classes
Final Exam Period	Dec. 7-16	

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.