



**DEPARTMENT OF SCIENCE**

**COURSE OUTLINE – FALL 2011**

**MA 1600 A2**

**HIGHER ARITHMETIC**

**INSTRUCTOR:** Brian Redmond,  
Ph.D.

**PHONE:** (780) 539-2093

**OFFICE:** J206

**EMAIL:** bredmond@gprc.ab.ca

**OFFICE HOURS:** T R 14:00 – 16:00

**PREREQUISITE:** Pure Mathematics 30

**REQUIRED TEXT/RESOURCE MATERIALS:**

Musser, Burger & Peterson: Mathematics for Elementary Teachers – A Contemporary Approach, 9E, Wiley 2011.

**CALENDAR DESCRIPTION:**

Problem Solving, Elementary Number Theory, Numeration Systems, Number Systems, Statistics and Elementary Probability Theory are included in this course.

**CREDIT/CONTACT HOURS:** 3 (3-1-0) UT

**DELIVERY MODE(S):**

Lecture:	13:00-14:20	M	J202
Lecture:	11:30-12:50	F	J202
Seminar AS1:	12:00-12:50	R	J202
Seminar AS2:	12:00-12:50	T	J202

## **COURSE OBJECTIVES:**

At the end of this course, students should be able to...

- Effectively use Polya's four-step process and strategies for solving problems;
- Utilize Venn diagrams to reason about sets and understand basic set notation;
- Identify arithmetic and geometric sequences;
- Translate Roman Numerals;
- Express numbers in different bases; Accurately perform whole number operations (addition, subtraction, multiplication, division) in any base;
- Determine whether a number is composite or prime;
- Find the prime factorization of a number;
- Calculate GCDs and LCMs;
- Add, subtract, multiply and divide fractions; Reduce a fraction to simplest form;
- Express a proper fraction as an Egyptian fraction;
- Translate back and forth between repeating decimals and fractions;
- Add, subtract, multiply and divide decimals; Use scientific notation;
- Solve simple proportions and calculate percentages;
- Add, subtract, multiply, divide integers and rational numbers;
- Order sets of numbers;
- Simplify (rational) exponents;
- Identify an irrational number; Solve quadratic equations;
- Approximate square roots using the Babylonian method;
- Calculate the mode, median, mean, variance and standard deviation of a collection of data; Calculate z-scores;
- Calculate probabilities for simple and multi-stage experiments;
- Calculate expected value and conditional probabilities.

**TRANSFERABILITY:** UA, UC, UL, AU, GMU, etc. Transfers to other institutions: Consult the Alberta Transfer Guide for more information.\*\*

\*\*Note: 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.

**GRADING CRITERIA:**

<b>GRANDE PRAIRIE REGIONAL COLLEGE</b>			
<b>GRADING CONVERSION CHART</b>			
<b>Alpha Grade</b>	<b>4-point Equivalent</b>	<b>Percentage Guidelines</b>	<b>Designation</b>
<b>A<sup>+</sup></b>	<b>4.0</b>	<b>90 – 100</b>	<b>EXCELLENT</b>
<b>A</b>	<b>4.0</b>	<b>85 – 89</b>	
<b>A<sup>-</sup></b>	<b>3.7</b>	<b>80 – 84</b>	<b>FIRST CLASS STANDING</b>
<b>B<sup>+</sup></b>	<b>3.3</b>	<b>77 – 79</b>	
<b>B</b>	<b>3.0</b>	<b>73 – 76</b>	<b>GOOD</b>
<b>B<sup>-</sup></b>	<b>2.7</b>	<b>70 – 72</b>	
<b>C<sup>+</sup></b>	<b>2.3</b>	<b>67 – 69</b>	<b>SATISFACTORY</b>
<b>C</b>	<b>2.0</b>	<b>63 – 66</b>	
<b>C<sup>-</sup></b>	<b>1.7</b>	<b>60 – 62</b>	
<b>D<sup>+</sup></b>	<b>1.3</b>	<b>55 – 59</b>	<b>MINIMAL PASS</b>
<b>D</b>	<b>1.0</b>	<b>50 – 54</b>	
<b>F</b>	<b>0.0</b>	<b>0 – 49</b>	<b>FAIL</b>
<b>WF</b>	<b>0.0</b>	<b>0</b>	<b>FAIL, withdrawal after the deadline</b>

**EVALUATIONS:**

Assignments:	15%
Midterm 1:	25% (Friday, October 14, 2011)
Midterm 2:	25% (Monday, November 7, 2011)
Final Exam:	35% (Cumulative and scheduled during exam period, TBA)

Note: There will be no make-up quizzes or exams. If a quiz/test is missed for a valid reason and proper documentation is provided, then the weight of the quiz/test will be transferred to another component. Late assignments will not be accepted.

**STUDENT RESPONSIBILITIES:**

Attend all lectures and seminars. If a lecture or seminar is missed, it is the student's responsibility to catch up on the material and obtain the missing lecture notes.

**STATEMENT ON PLAGIARISM AND CHEATING:** 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 [www.gprc.ab.ca/about/administration/policies/\\*\\*](http://www.gprc.ab.ca/about/administration/policies/**)

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

**COURSE SCHEDULE/TENTATIVE TIMELINE:**

Week	Topics	Notes
1. Sept. 5-9	Introduction	
2. Sept. 12-16	Chapter 1	
3. Sept. 19-23	Chapter 2	
4. Sept. 26-30	Chapter 3	
5. Oct. 3-7	Chapter 4	
6. Oct. 10-14		Thanksgiving, Monday, Oct. 10 – no classes / <b>Midterm 1, Fri. Oct.14</b>
7. Oct. 17-21	Chapter 5	
8. Oct. 24-28	Chapter 6	
9. Oct. 31-Nov. 4	Chapter 7	Nov.2, last day to withdraw
10. Nov. 7-11		<b>Midterm 2, Mon. Nov. 7/</b> Remembrance Day, Friday, Nov. 11 – no classes
11. Nov. 14-18	Chapter 8	
12. Nov. 21-25	Chapter 9	
13. Nov. 28-Dec. 2	Chapter 10	
14. Dec. 5-9	Chapter 11	
15. Dec. 12-21		Final Exams