DEPARTMENT OF SCIENCE

COURSE OUTLINE – Winter 2018

MA2600 A3/B3: Topics in Mathematics – 3 (3-2-0) UT
15 Weeks, 75 Hours

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

OFFICE HOURS: TBA

CALENDAR DESCRIPTION:
Problem solving in different areas of mathematics. Topics include: inductive and deductive reasoning; Introduction to logic, truth tables, and Venn diagrams; Mathematical Induction; Euclidean geometry, curves, polygons, area, volume, and geometric constructions; Angle measurement and Trigonometry; Counting methods and the Pigeonhole Principle, Factorials, Permutations and Combinations, Introduction to Probability.

PREREQUISITE: MA1600 or any 1000-level Math course

REQUIRED TEXT/RESOURCE MATERIALS: Mathematics For Elementary Teachers, 10th Edition, by Musser, Peterson, and Burger. (Wiley 2014). We will cover approximately Chapters 11-16 and Topic 1 of the text plus some additional material provided by the instructor.

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 and beyond, and to further develop their reasoning skills in mathematics. Thus, an emphasis will be placed on problem-solving and non-calculator based techniques.

LEARNING OUTCOMES:
The course is broken down into three units: Elementary Logic, Geometry and Measurement, and Counting and Probability.
At the end of unit 1, students will be able to create, analyze and critique deductive arguments using symbolic logic, truth tables, Venn/Euler diagrams, and Mathematical Induction.
At the end of unit 2, students will be able to use their understanding of geometry to derive and use formulas to find the perimeter, area, and volume of two- and three-dimensional figures; classify and measure angles, find the circumference and area of a circle, and solve mathematical problems using geometrical ideas such as congruence, similarity, and the Pythagorean theorem. Students will also understand circle geometry, and solve geometric problems using a coordinate system.
At the end of unit 3, students will be able to use the fundamental counting principle, tree diagrams, factorials, permutations and combinations, and Pascal's triangle to solve counting problems; calculate

probabilities for simple and complex experiments; calculate the expected value of a random variable and apply linearity of expected value in problem solving applications.

TRANSFERABILITY:

MRU
Athabasca University
University of Alberta*
University of Calgary
Grant MacEwan University

* Consult the Alberta Transfer Guide for more information: http://www.transferalberta.alberta.ca
** 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 1	20%	**Friday, Feb. 16th**
• Midterm 2	20%	**Monday, Mar. 26th**
• Final Exam (cumulative)	40%	Apr. 16-26 inclusive

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

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.