



DEPARTMENT OF SCIENCE

COURSE OUTLINE – WINTER 2021

MA2600 A3: MATHEMATICAL REASONING FOR TEACHERS– 3- (3-1-0) UT 60 HOURS 15 WEEKS

INSTRUCTOR: Dallas Sawtell

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OFFICE:

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OFFICE HOURS:

WINTER 2021 DELIVERY: Remote Delivery. This course is delivered remotely. There are no face-to-face or onsite requirements. Students must have a computer with a webcam and reliable internet connection. Technological support is available through helpdesk@gprc.ab.ca.
Note: GPRC reserves the right to change the course delivery.

CALENDAR DESCRIPTION: Reasoning and problem solving in the context of logic, algebra, geometry, and combinatorics.

PREREQUISITE(S): MA1600 or any 1000-level Math course

REQUIRED TEXTS/RESOURCE MATERIALS: Gary L. Musser, Blake E. Peterson, William F. Burger, Mathematics for Elementary Teachers: A Contemporary Approach, any edition, Wiley . We will cover approximately Chapters 11-15

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 two units: Counting and Probability, and Geometry and Measurement.

At the end of unit 1, 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.

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.

TRANSFERABILITY: Please consult the Alberta Transfer Guide for more information. You may check to ensure the transferability of this course at the Alberta Transfer Guide main page <http://www.transferalberta.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: Written assignments	20%
Quizzes	10%
Midterm Wed., Feb. 10	35% written and oral
Final Exam	35% written and oral

It is the student's responsibility to be available to write the final exam at the scheduled time. Writing early is not permitted.

COURSE SCHEDULE/TENTATIVE TIMELINE: TBA

GRADING CRITERIA:

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: Students are responsible for all lecture material, seminars and readings. Students are expected to practice the material by doing problems from the textbook. No late assignments or tests will be accepted. Assignments and quizzes cannot be made up if missed. If the midterm is missed due to illness the weight will be put on the final (ie. the final will be worth 70%). If the final is missed due to illness it will be deferred (see calendar for information). A doctor's note and a phone message or email will be required in all cases. Cellphone use is not permitted in the classroom. This includes texting. Please turn off and put away your cellphone during class. You may be asked to leave the classroom if using a cellphone. No recording of any kind is allowed in the class, seminar or during consultation with the instructor.

Refer to the College Policy on Student Rights and Responsibilities at:

<https://www.gprc.ab.ca/about/administration/policies>

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 <http://www.gprc.ab.ca/about/administration/policies/>

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