DEPARTMENT OF SCIENCE

COURSE OUTLINE – Winter 2020

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

INSTRUCTOR:	Dallas Sawtell	**PHONE:**	780-539-2989
OFFICE:	C412	**E-MAIL:**	dsawtell@gprc.ab.ca
OFFICE HOURS:	Tues 10:30-11:30 Fri. 1:00-2:00		

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: Counting and Probability, Geometry and Measurement, and Elementary Logic
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.

At the end of unit 3, students will be able to create, analyze and critique deductive arguments using symbolic logic, truth tables, and Venn/Euler diagrams.

TRANSFERABILITY:

* 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 in the seminars 15%
- Quizzes every Monday starting Jan. 20 20%
- Midterm Monday, March 2 26%
- Final Exam Apr. 15-25 inclusive including weekends and evenings 39%

No calculators or formula sheets are allowed on quizzes, midterms or the final exam
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:

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: 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 worksheets will be accepted. 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 65%). 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.

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.