



DEPARTMENT OF ACADEMIC UPGRADING

COURSE OUTLINE – WINTER 2016

MA0132 A3/VC: Mathematics Grade 12 Equivalent (Principles 30-2) – 5 (6-0-0)

90 Hours for 15 Weeks

INSTRUCTOR: Dr. Brian Redmond
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OFFICE HOURS: M/W 10-11:30 AM

CALENDAR DESCRIPTION: This course explores set theory, counting methods, probability, rational expressions and equations, and functions (polynomial, exponential, logarithmic, and sinusoidal).

PREREQUISITE(S)/COREQUISITE: MA0122 or MA0120 or equivalent, or equivalent placement test score, or Math 20-1 or 60% or higher in Math 20-2 or equivalent within the previous two years

REQUIRED TEXT/RESOURCE MATERIALS:

- Alan Appleby, Foundations of Mathematics 12 Workbook, Absolute Value Publications 2012
- Non-graphing scientific calculator (TI-30XIIS recommended)
- Internet access for moodle and additional material (e.g. Desmos Calculator)

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

COURSE OBJECTIVES: To develop logical reasoning and critical thinking skills related to uncertainty. To develop algebraic and graphical skills through the study and polynomial, rational, exponential, logarithmic, and sinusoidal functions.

LEARNING OUTCOMES: After successful completion of MA0132, students will be able to:
Unit 1: Logical Reasoning and Set Theory

- Analyze puzzles and games that involve numerical and logical reasoning, using problem-solving strategies
- Use set notation and operations
- Represent relationships between sets using Venn diagrams
- Solve problems that involve the application of set theory

Unit 2: Counting Methods and Probability

- Determine the number of permutations and combinations of a given collection of objects
- Use the fundamental counting principle

- Solve problems that involve factorials, permutations and combinations
- Interpret and assess the validity of odds and probability statements
- Solve problems that involve the probability of mutually exclusive and non-mutually exclusive events
- Solve problems that involve the probability of dependent and independent events

Unit 3: Polynomials

- Identify the characteristics of polynomial functions
- Identify intercepts, and the end behavior of polynomial functions
- Use polynomial functions of degree ≤ 3 to model data (e.g. regression)

Unit 4: Rational Expressions and Equations

- Determine equivalent forms of rational expressions
- Simplify rational expressions
- Determine non-permissible values and the domain of a rational function
- Perform operations with rational expressions (add, subtract, multiply and divide)
- Solve problems that involve rational equations

Unit 5: Exponential and Logarithmic Functions

- Demonstrate an understanding of logarithms and the laws of logarithms
- Solve problems that involve exponential equations
- Solve problems modelled with exponential and logarithmic functions
- Solve problems in financial mathematics using logarithms and exponentials

Unit 6: Sinusoidal Functions

- Sketch angles in degree and radian measure
- Graph and analyze sinusoidal functions, including intercepts, amplitude, period, phase shifts, midline value, and maximum and minimum values
- Model data with sinusoidal functions

More information available at:

https://education.alberta.ca/media/563817/09-math30-2-standardsexemp-2015-16_20151001.pdf

TRANSFERABILITY:

This course is listed in the Alberta Transfer Guide (see <http://www.transferalberta.ca>), and is accepted at colleges and universities in Alberta as equivalent to Math 30-2.

* 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:

- | | |
|---------------------------|---------------|
| • Homework | 10% |
| • Unit Tests | (6 @ 5% each) |
| • Midterm | 20% |
| • 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	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

COURSE SCHEDULE/TENTATIVE TIMELINE:

Week 1	Jan. 4-8	Unit 1	Jan. 6 first day of class
Week 2	Jan. 11-15	Unit 1	
Week 3	Jan. 18-22	Unit 2	Unit 1 test
Week 4	Jan. 25-29	Unit 2	
Week 5	Feb. 1-5	Unit 3	Unit 2 test
Week 6	Feb. 8-12	Unit 3	Unit 3 test
Week 7	Feb. 15-19		Winter Break, no classes
Week 8	Feb. 22-26	Review	Midterm
Week 9	Feb. 29-Mar. 4	Unit 4	
Week 10	Mar. 7*-11	Unit 4	
Week 11	Mar. 14-18	Unit 5	Unit 4 test
Week 12	Mar. 21-25**	Unit 5	
Week 13	Mar. 28-Apr. 1	Unit 6	Unit 5 test
Week 14	Apr. 4-8	Unit 6	
Week 15	Apr. 11-13	Review	Unit 6 test, Apr. 13 last day of classes
Final Exam Period	Apr. 15-26		

*Last day to withdraw

**Good Friday, no classes

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.