Course Outline

AFM 009 Section G

6 Credits, 16 weeks, 8 hours

Course Description

AFM 009 will review all four operations (addition, subtraction, multiplication, division) on rational numbers including rational and irrational square roots. Students will explore algebra including the simplifying of the exponent laws, algebraic expressions and polynomial operations. Students will also explore the solving of linear equations (two or more steps) and linear inequalities in one variable as well as the graphing of linear equations in two variables. A review of two and three dimensional measurement will be applied to volume and surface area, the Pythagorean Theorem and circle properties. Students will apply their number sense to the application of probability in our society.

Prerequisites: Math 007 (AFM 007) or placement test or equivalent or permission from the Program Chair

Instructor
Melodee Helgason
Gregoire Lake Learning Centre
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780 838-4361 cell (leave message)
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Office Hours

Monday 9:00 – 10:00 and 4:00 – 5:00
Tuesday 9:00 – 10:00
Wednesday 9:00 – 10:00
Thursday 9:00 – 10:00

Hours of Instruction
Monday 10:00 – 12:00
Tuesday 10:00 – 12:00
Wednesday 10:00 – 12:00
Thursday 10:00 – 12:00

Required Resources

Pearson Custom Mathematics Textbook, Keyano College Math 009

Supplementary handout for statistics and probability (instructor provided)
Calculator
Geometry Set
Binder, lined paper, graph paper, pens/pencil

Course Outcomes

At the completion of the course, students will:

- Explain the meaning of integers and do all four operations with integers using BEDMAS
- Describe whether or not a number is a rational number
- Add, subtract, multiply, and divide fractional and rational numbers
- Compare and interconvert mixed fractions and improper fractions
- Calculate the area and perimeter of two-dimensional figures
- Understand and give examples of natural numbers, whole numbers, integers, and rational numbers
- Determine the square root of a number and identify the principle square root
- Identify various parts of the number as base, exponent, and power
- Use the laws of exponents to simplify or solve problems
- Write a number in scientific notation
- Understand and define polynomials
- Evaluate polynomial expressions
- Perform addition, subtraction, and multiplication of polynomials
- Divide polynomials by monomials
- Factor polynomials
- Write an expression for a given problem
- Understand the difference between an equation and an expression
- Manipulate equations
- Write and solve equations
- Solve and graph inequalities
- Understand and solve uniform motion problems
- Solve complex problems
- Define complementary and supplementary angles
- Understand angle relationships of parallel lines and transversals
- Calculate the sum of interior angles in a triangle
- Construct angle bisectors and perpendicular bisectors and triangles
- Explain similar and congruent triangles
- Use Pythagorean Theorem to calculate the unknown side
- Explain circle properties and chords
- Find the unknown angles and perpendicular bisector theorem, angles inscribed in circle theorem, and tangents to a circle theorem
- Estimate and measure the angles of 2-D figures
- Explain and solve problems that involve radii, diameter, and circumference
- Calculate the surface area and volume of 3-D figures
- Identify the pattern
- Graph relations and scatter plots
- Find the line of best fit
- Calculate mean, median, mode, and range
- Explore data display and graph
- Interpret and represent data
- Explain probability and find outcomes and sample space of an event

Evaluation

Assignments	30%
Unit Tests	50%
Final Exam	20%
Total	100%

The minimum pre-requisite for progression is 1.7 (refer to Grading System below)

Grading System

Descriptor	4.0 Scale	Percent
	4.0	96 – 100
Excellent	4.0	90 – 95
	3.7	85 – 89
	3.3	81 – 84
Good	3.0	77 – 80
	2.7	73 – 76
	2.3	69 – 72
Satisfactory	2.0	65 – 68
Minimum Prerequisite	1.7	60 – 64
Poor	1.3	55 – 59
Minimum Pass	1.0	50 – 54
Failure	0.0	0 – 49

Proposed Schedule of Topics

Schedule and Proposed Topics			
WEEK	**DATES**	**UNIT**	**TOPIC**
1 - 2	Jan 5 - 15	1	**Signed Numbers:** adding, subtracting, multiplying, dividing, order of operations, scientific notation.
3 - 4	Jan 19 – 30	2	**Introduction to Algebra:** variables & like terms, distributive property, solving equations, translating English to algebra.
5	Feb 2 – 5	3	**Solve and graph Linear Inequalities:** number lines, solving inequalities in one variable
6	Feb 9 – 12	4	**Ratio and Proportion:** ratios and rates, concept of proportions, solving proportions.
7	Feb 16 – 19	5	**Percent:** understanding; changing between percent, decimals and fractions; solving problems.
8	Mar 2 – 5	6	**Powers and Polynomials:** laws of exponents; polynomials; basic operations.
9 - 10	Mar 10 – 20	7	**Graphing Linear Equations & Functions:** graphing linear equations and functions; graphing with two variables using alternative methods; slope; linear equation of a line.
11 – 12	Mar 24 – Apr 2	8	**Measurement:** metric; time, temperature and other measures; metric/U.S. comparisons; accuracy, error and measuring instruments.
13 - 14	Apr 6 – 16	9	**Geometry:** angles; rectangles & squares; parallelograms/trapezoids/rhombuses; triangles; square roots; Pythagoras; circles; volume; similar figures.
15	Apr 20 - 22	10	**Solid Figures:** prisms; pyramids and frustums; cylinders and spheres; cones and frustums.
16	Apr 24 - 29	**Exam Week**	Exam to be scheduled

Please Note:
Date and time allotted to each topic is subject to change. It is your responsibility as a student to contact the Office of the Registrar to complete the forms for Withdrawal or Change of Registration, and any other

forms. Please refer to the list of important dates as noted in the Academic Schedule in the Keyano College Credit Calendar.

Student Attendance

Class attendance is useful for two reasons. First, class attendance maximizes a student's learning experience. Second, attending class is a good way to keep informed of matters relating to the administration of the course (e.g., the timing of assignments and exams). Ultimately, you are responsible for your own learning and performance in this course.

It is the responsibility of each student to be prepared for all classes. Students who miss classes are responsible for the material covered in those classes and for ensuring that they are prepared for the next class, including the completion of any assignments and / or notes that may be due.

Academic Misconduct

Students are considered to be responsible adults and should adhere to principles of intellectual integrity. Intellectual dishonesty may take many forms, such as:

- Plagiarism or the submission of another person's work as one's own
- The use of unauthorized aids in assignments or examinations (cheating)
- Collusion or the unauthorized collaboration with others in preparing work
- The deliberate misrepresentation of qualifications
- The willful distortion of results or data
- Substitution in an examination by another person
- Handing in the same unchanged work as submitted for another assignment

Penalties for academic offences range from a verbal reprimand to dismissal from the College, and in certain circumstances may involve legal action.

Specialized Supports

Counselling and Disability Services

Counselling Services provides a wide range of specialized counselling services to prospective and registered students, including personal, career and academic counselling.

SKILL Centre

The SKILL Centre is a learning space in the Clearwater Campus at Keyano College where students can gather to share ideas, collaborate on projects and get new perspectives on learning from our tutorial staff.

The SKILL Centre, through a variety of delivery methods, provides assistance in skill development to Keyano students. Assistance is provided by instructors, staff and student tutors. Individuals wishing to improve their mathematics, writing, grammar, study, or other skills, can take advantage of this unique service.

Authorization

This course outline has been reviewed and approved by the Program Chair.

Melodee, Helgason, Instructor

Lisa Turner, Chair   Date Authorized

Guy Harmer, Dean   Date Authorized