

I. COURSE DESCRIPTION:

This first level mathematics course for the pre-health program begins with a review of arithmetic operations with whole numbers, fractions, and decimals. Concepts of ratio, proportion, and percents are studied. A measurement section includes metric and imperial units, uncertainty and significant digits. This is followed by calculations involving order of operations, scientific notation, significant figures, and units of measure. Problems involving linear relationships are then solved using formula rearrangement, graphing, and algebraic methods.

II. LEARNING OUTCOMES AND ELEMENTS OF THE PERFORMANCE:

Upon successful completion of this course, the student will demonstrate the ability to:

Unit 1

1. Add, subtract, multiply, and divide whole numbers, decimals, and signed numbers *without* a calculator.
2. Evaluate expressions following the order of operations.
3. Define and differentiate between accuracy and precision.
4. Apply the scientific rules of rounding and determining significant digits.
5. Convert numbers between decimal form and scientific notation.
6. Perform arithmetic operations on numbers in scientific notation.
7. Solve problems by translating english sentences into mathematical equations.
8. Solve literal equations for the indicated variable.
9. Define the types of fractions.
10. Convert between improper fractions and mixed numbers.
11. Add, subtract, multiply, and divide fractions with and *without* a calculator.
12. Solve applied problems with fractions by applying problem solving strategies and arithmetic skills.

Unit 2

1. Solve problems involving ratios, proportions, variations, and percents.
2. Utilize metric system prefix names and symbols.
3. Reduce units of measurement within systems.
4. Convert units of measurement from one system to another.

Unit 3

1. Simplify algebraic expressions using the laws of exponents.
2. Convert powers between exponential and radical form.
3. Simplify expressions by removing grouping symbols and combining like terms.
4. Add, subtract, and multiply algebraic expressions.
5. Divide polynomials by monomials.
6. Solve linear equations for one variable.

Unit 4

1. Graph points, lines, and curves on the rectangular coordinate system.
2. Find the slope and intercepts of a line.
3. Develop the equation for a line.
4. Find the approximate graphical solution to a system of two equations.
5. Solve a system of two equations and two unknowns using the addition-subtraction method and the substitution method.

III. TOPICS:

1. Review of Arithmetic	A.1-A.7; 1.1-1.3; 1.5
2. Scientific Notation and Significant Digits	1.6
3. Formula Rearrangement	4.2
4. Ratio and Proportion	4.5
5. Units of Measurement	2.1-2.3
6. Percentages	A.8
7. Exponents	1.4; 10.1-10.2
8. Introduction to Algebra	3.1-3.5
9. Solving Simple Equations	4.1
10. Graphing	5.2-5.4
11. Linear Functions	7.1-7.3

IV. REQUIRED RESOURCES/TEXTS/MATERIALS:

1. Washington, A. J., Triola, M.F., & Reda, E. E. (2008). *Introduction to Technical Mathematics*. 5th ed. Toronto: Pearson Addison Wesley.
2. Calculator: (Recommended) SHARP Scientific Calculator. *The use of some kinds of calculators, cell phones, and other electronic devices may be restricted during tests.*

V. EVALUATION PROCESS/GRADING SYSTEM:

Evaluation Methods:

Unit 1: Arithmetic, Significant Digits, and Formulas

(no calculators allowed!)

Quizzes (6 in total, 5% each) – 30%

Unit 2: Ratios, Proportions, Percents, and Unit Conversions

Quizzes (3 in total, 5% each) - 15%

Unit Test – 15%

Unit 3: Introduction to Algebra

Quizzes (3 in total) – 20%

Unit 4: Graphing and Linear Systems

Quizzes (4 in total, 5% each) – 20%

The following semester grades will be assigned to students:

Grade	<u>Definition</u>	<i>Grade Point Equivalent</i>
A+	90 – 100%	4.00
A	80 – 89%	3.00
B	70 - 79%	2.00
C	60 - 69%	1.00
D	50 – 59%	0.00
F (Fail)	49% and below	
CR (Credit)	Credit for diploma requirements has been awarded.	
S	Satisfactory achievement in field /clinical placement or non-graded subject area.	
U	Unsatisfactory achievement in field/clinical placement or non-graded subject area.	
X	A temporary grade limited to situations with extenuating circumstances giving a student additional time to complete the requirements for a course.	
NR	Grade not reported to Registrar's office.	
W	Student has withdrawn from the course without academic penalty.	

VI. SPECIAL NOTES:Attendance:

Sault College is committed to student success. There is a direct correlation between academic performance and class attendance; therefore, for the benefit of all its constituents, all students are encouraged to attend all of their scheduled learning and evaluation sessions. This implies arriving on time and remaining for the duration of the scheduled session.

VII. COURSE OUTLINE ADDENDUM:

The provisions contained in the addendum located on the portal form part of this course outline.