

COURSE NAME: MTH092 Math Applications and Indigenous Knowledge

Credit Value: 5
Total Course Hours: 70
Prerequisite Course(s): MTH091
Corequisite Course(s): None

COURSE DESCRIPTION

MTH 092 combines math with the larger vision and worldview by First Peoples of earth and all that exists as existing in an interconnected web of life. Within this theme and using a holistic approach, fractions, decimals, ratio and proportion, percent, geometry, measurement, algebra, functions and graphs, statistics and probability, and rational numbers are connected to the wider discipline of business, trades, science and technology, to the interests, learning needs and personal realities of students, and to the cultural heritage and tradition of student environments and communities. Within its emphasis on interrelationships and organized and critically thinking, students learn how to apply fundamental math principles to solve real-life and practical problems, how to analyze and adapt to new situations, and how to communicate their thinking effectively.

PLAR INFORMATION

This course is eligible for Prior Learning Assessment and Recognition. Students are advised to discuss options with their program coordinator.

COURSE LEARNING OUTCOMES

Upon completion of this course, the student will have reliably demonstrated the ability to:

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| <p>1.0 Use fractions to solve application problems involving budgeting, business, trades, science and technology by:</p> <ul style="list-style-type: none">1.1 Applying rules and procedures to find the LCM and GCF of two or more numbers.1.2 Applying rules and procedures to write an improper fraction as a mixed or whole number, to write a mixed number as an improper fraction, and to write a fraction in its simplest form.1.3 Applying rules and procedures to find equivalent fractions by raising to higher terms, to add and subtract fractions with same and different denominators, and to multiply and divide fractions.1.4 Applying rules and procedures to find the order relation between two fractions with same different denominators, and to use order of operations to simplify expressions <p>2.0 Use decimals to solve application problems involving budgeting, business, trades, science and technology by:</p> <ul style="list-style-type: none">2.1 Applying rules and procedures to round a | <ul style="list-style-type: none">decimal to a given place value.2.2 Applying rules and procedures to add, subtract, multiply, divide decimals.2.3 Applying rules and procedures to convert a fraction to a decimal, a decimal to a fraction.2.43.0 Use ratio and proportions to solve application problems involving budgeting, business, trades, science and engineering by:<ul style="list-style-type: none">3.1 Applying rules and procedures to write the ratio of two known quantities in simplest form, and to write rates and unit rates.3.2 Applying rules and procedures to find a unit rate, and solve and set up a proportion.4.0 Use percent to solve application problems involving budgets, business, trades, science and engineering by:<ul style="list-style-type: none">4.1 Applying rules and procedures to write a percent as a fraction and decimal or write a decimal or fraction as a percent.4.2 Applying rules and procedures to find the amount when percent and base are given, to find the percent when the base and the amount |
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are given, and to find the base when the percent and the amount are given.

4.3 Applying rules and procedures to solve using the equation method and proportion method.

5.0 Use geometry so solve problems involving trades, science and technology by:

5.1 Classifying lines, angles and geometric shapes (e.g. triangle, right triangle, quadrilateral, circle) based on their specific properties.

5.2 Reading diagrams and transfer information to formulas to find the perimeter of a triangle, rectangle, parallelogram, square and circumference of a circle.

5.3 Reading diagrams and transfer information to formulas to find the area of a triangle, rectangle, parallelogram, square, and circle.

5.4 Reading diagrams and transfer information to formulas to find the volume of a rectangular solid, cube, sphere and cylinder.

5.5 Reading diagrams and transfer information to formulas to find the radius and diameter of a circle.

5.6 Reading diagrams and using the sums of a right triangle and triangle to find the measurement of missing angles.

5.7 Using the Pythagorean theorem to find the unknown of a right triangle.

6.0 Use measurement to solve applications problems involving trades, science and technology by:

6.1 Applying a variety of measurement tools (e.g. ruler) to obtain data.

6.2 Identifying the basic units of length, mass, capacity in both the imperial and metric system.

6.3 Identifying the prefixes of basic unit to denote magnitude (e.g. kilo = 1000).

6.4 Using appropriate methods (moving the decimal point, using ratio and proportion, and dimensional analysis) to either or convert within the same system or between systems.

6.5 Using appropriate equivalencies to change one unit of time to another.

6.6 Performing arithmetic operations with measurements.

6.7 Using one or multi-steps to convert imperial units to metric units and metric units to imperial units.

6.8 Using formulas to convert units of temperature.

7.0 Use algebra to solve application problems involving budgeting, business, trades, science and technology by:

7.1 Translating verbal expressions into mathematical expressions.

7.2 Applying rules, procedures and or properties to solve equations of the form $x + a = b$, $ax = b$, $ax + b = c$ and $ax + b = cx + d$

7.3 Translating sentences into equations.

8.0 Use functions and graphs to solve application problems involving business, trades, science and technology by:

8.1 Expressing functions in verbal form, in the form of an equation, and as a set of ordered pairs.

8.2 Graphing a set of ordered pairs and graphing data.

8.3 Using substitution to make a table of values for a linear function, and graphing.

8.4 Using the slope intercept form to find the slope and y intercept of a line.

8.5 Graphing and finding the equation of a linear function passing through specified ordered pairs.

9.0 Use statistics and probability to solve application problems involving budgets, business, trades, science and engineering by:

9.1 Interpreting graphs and display data using a variety of graphs (e.g. circle graph, bar graph, broken line graph, histogram, and frequency polygon)

9.2 Applying the rules and procedures to find the mean, median, and mode of a distribution.

9.3 Applying the rules and procedures to calculate probability of simple events.

10.0 Use rational numbers to solve application problems involving budgets, business, trades, science and technology by:

10.1 Applying rules and procedures to add, multiply and divide integers having same and different signs, and subtract two numbers.

10.2 Expressing numbers in decimal and scientific notation.

10.3 Using order of operations to simplify expressions with rational numbers.

GENERAL EDUCATION

This is not a General Education course.

PROGRAM OUTCOMES

This course contributes to the following Ministry of Colleges and Universities approved program learning outcomes (PLO):

Indigenous Preparatory Studies

4. Apply problem solving skills and demonstrate critical decision making skills.

ESSENTIAL EMPLOYABILITY SKILLS OUTCOMES

This course contributes to the following Ministry of Colleges and Universities approved essential employability skills (EES) outcomes:

1. Communicate clearly, concisely, and correctly in the written, spoken, and visual form that fulfils the purpose and meets the needs of the audience.

3. Execute mathematical operations accurately

4. Apply a systematic approach to solve problems

5. Use a variety of thinking skills to anticipate and solve problems

9. Interact with others in groups or teams in ways that contribute to effective working relationships and the achievement of goals.

11. Take responsibility for one's own actions, decisions, and consequences.

EXTERNAL COURSE ACCREDITATIONS AND CONDITIONS

COURSE EVALUATION

In class participation through module activities - 25%

In class and out of class individual and group assignments and projects - 25%

Quizzes - 25%

Final Exam - 25%

TOTAL - 100%

PROGRAM SPECIFIC GRADING

Per College Grading System

GRADING SYSTEM

A+:	90-100%	B+:	77-79%	C+:	65-69%	D:	50-54%	S - Satisfactory
A:	85-89%	B:	73-76%	C:	60-64%	F:	0-49%	I - Incomplete
A-:	80-84%	B-:	70-72%	D+:	55-59%			F - Repeat course

*For a complete detailed description please refer to the College website.

LEARNING RESOURCES

No textbook required. Direction is both delivered in class and on D2L. Resources include class handouts, PowerPoint presentations, worksheets, in class individual and group activities, in and out class assignments and projects. Resources listed in the course outline support the achievement of learning outcomes, and may be used throughout the course to varying degrees depending upon the instructor's teaching methodology and the nature of the resource.

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LEARNING ACTIVITIES

Lecture, examples with student input, module activities, in class and out of class individual and group assignments and projects, quizzes, final exam.

DELIVERY MODE

This course may be delivered, in whole or in part, in a number of modalities, including in class, online, hybrid, in a synchronous or asynchronous manner or a combination thereof, as per accreditation and/or regulatory standards where appropriate.

ACADEMIC POLICIES

Canadore College is committed to the highest standards of academic integrity, and expects students to adhere to these standards as part of the learning process in all environments. The College's Academic Integrity policy seeks to ensure that all students understand their rights and responsibilities in upholding academic integrity and that students receive an accurate and fair assessment of their work. Please review the Academic Integrity policy (A-18) and other academic policies found on our website: <https://www.canadorecollege.ca/about/policies>.

COLLEGE POLICIES

- Protecting human rights in support of a respectful college community

For college policies please see: <http://www.canadorecollege.ca/about-us/college-policies>.

STUDENT SUCCESS SERVICES - Your Success Matters!

We provide student-focused services to facilitate students' success in their studies. Staff provide support by reducing and/or removing educational-related barriers through accommodation planning with students with disabilities, learning strategies, mental health and wellness events. Visit our webpage to learn more: <https://www.canadorecollege.ca/support/student-success-services>

FIRST PEOPLES' CENTRE:

A culturally safe environment offering CONFIDENTIAL student focused services, drop in or make an appointment to access:

- One on one counselling
- Elder in residence program
- Peer tutoring
- Peer mentorship
- Lunch & learn workshops on study skills, self-care, life skills
- Learning Resource Centre

Drop by our offices at C254 College Drive, E101 Commerce Court or call 705 474 7600 Ext. 5961 College Drive / 5647 Commerce Court.

WAIVER OF RESPONSIBILITY

Every attempt is made to ensure the accuracy of this information as of the date of publication. The college reserves the right to modify, change, add, or delete content.

HISTORICAL COURSE OUTLINES

Students use course outlines to support their learning. Students are responsible for retaining course outlines for future use in applications for transfer of credit to other educational institutions.