

M: Course Objectives / Learning Outcomes

The learner has reliably demonstrated the ability to:

1. perform arithmetic and algebraic calculation accurately;
2. solve a variety of business problems by applying mathematical skills and assessing the results;
3. use mathematics as a decision-making and problem-solving tool;
4. exhibit a high standard of behaviour with respect to attendance, punctuality, positive attitude and respect for others.

N: Course Content: [approximate time allocation in weeks]**Module 1 – Review of Basic Algebra [1]**

- 1.1 Simplify algebraic expressions using the fundamental operations, and evaluate algebraic expressions by substitution.
- 1.2 Simplify and evaluate powers with positive exponents, negative exponents and exponent zero.
- 1.3 Solve basic equations using addition, subtraction, multiplication and division.
- 1.4 Solve equations involving algebraic simplification.
- 1.5 Solve business word problems by creating equations.

Module 2 – Ratio, proportion and percent [1]

- 2.1 Use ratios to solve allocation problems.
- 2.2 Use proportions to solve problems involving the equivalence of two ratios.
- 2.3 Solve problems of increase and decrease.
- 2.4 Solve a variety of business problems involving proportions and percents.

Module 3 – Linear Systems [2]

- 3.1 Graph linear equations and linear inequalities in two variables in a set of rectangular coordinates.
- 3.2 Graph linear systems consisting of two linear relations in two variables.
- 3.3 Define the slope-intercept form of a linear equation and use it for graphing.
- 3.4 Solve linear systems consisting of two linear equations in two variables using the method of elimination by addition or subtraction.
- 3.5 Solve business problems by setting up systems of linear equations in two variables.
- 3.6 Construct detailed break-even charts.

Module 4 – Commercial Discounts, Markup and Markdown [2]

- 4.1 Solve problems involving trade discounts, including discount series and equivalent single rates of discount.
- 4.2 Solve problems involving cash discounts.
- 4.3 Solve problems involving taxes, duties and exchange.
- 4.4 Solve problems involving margin based on either cost or selling price.
- 4.5 Solve pricing problems involving markup, markdown and discounts.

Module 5 – Simple Interest [2]

- 5.1 Determine the maturity value of interest-bearing notes.
- 5.2 Determine the present value of promissory notes.
- 5.3 Compute equivalent values for specified focal dates.
- 5.4 Discount promissory notes and treasury bills using the simple discount method.
- 5.5 Compute interest and balances for demand loans and lines of credit.

Module 6 – Compound Interest – Amount and Present Value [2]

- 6.1 Determine the maturity value of loans involving compound interest.
- 6.2 Determine the present value of loans involving compound interest.
- 6.3 Compute periodic, nominal and effective rates of interest.
- 6.4 Discount long-term promissory notes.
- 6.5 Solve problems involving equations of value.
- 6.6 Determine maturity values involving fractional compounding periods.
- 6.7 Determine discounted values involving fractional compounding periods.
- 6.8 Determine the number of conversion periods and find equated dates.

Module 7 – Annuities [2]

- 7.1 Determine the present and future value of ordinary simple annuities.
- 7.2 Determine the payments, term and interest rate for ordinary simple annuities.
- 7.3 Determine the present and future value of simple annuities due.
- 7.4 Determine the payments, term and interest rate for simple annuities due.
- 7.5 Construct periodic payment amortization schedules.

Module 8 – Amortization [1]

- 8.1 Determine the amortization and net book value for each year in the life of an asset.
- 8.2 Construct amortization schedules using averaging methods.
- 8.3 Construct amortization schedules using sum-of-the-years-digits method.
- 8.4 Construct amortization schedules using declining balance methods.

O: Methods of Instruction

Following a lecture format, part of the course content will be presented by way of explanation, demonstration and guided practice. Following a seminar format, some content will be presented as situational problems that require individual and group consideration, discussion and resolution.

P: Textbooks and Materials to be Purchased by Students

S.A. Hummelbrunner. Contemporary Business Mathematics with Canadian Applications. Latest Ed.
Pearson Education.

Materials: Calculator, any one of: Texas Instruments BA II+ or Texas Instruments BA35 or
Hewlett Packard 10B or Sharp EL-733a

Q: Means of Assessment

Assignments	15%
Employability Skills	10
Term Tests (3)	45
Final Exam	<u>30</u>
	<u>100%</u>

R: Prior Learning Assessment and Recognition: specify whether course is open for PLAR

Challenge exams only

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