

THE SAULT COLLEGE OF APPLIED ARTS AND TECHNOLOGY
SAULT STE. MARIE, ON



COURSE OUTLINE

Course Title: Mathematics

Code No.: MTH1170-2

Semester: One

Program: Office Administration

Author: The Mathematics Department

Date: January 2003

Previous Outline Dated: August 2001

Approved: _____

Dean

Date

Total Credits: 2 Prerequisite(s): None

Substitute(s): Mth 111, Mth 104, Mth 129

Length of Course: 2 hours/week Total Credit Hours: 32

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For additional information, please contact School of Student Success Services, Business and Liberal Studies (705) 759-2554, ext. 516

I. COURSE DESCRIPTION:

The student will study fractions, decimals, percentages, ratio and proportion, and the metric system and conversion of units, applying each of these to business problems. The course concludes with an introduction to statistics, including preparing and interpreting graphs.

Administrative support staff employees are required to demonstrate basic math competencies both in their jobs and in their personal lives. Tasks ranging from spreadsheet creation and analysis through to calculation of invoices require a strong foundation in mathematical principles. Regardless of the field, employment opportunities today require strong numeracy skills such as those gained in MTH 117.

Specific applications where Office Administration students/administration support personnel would be required to demonstrate mathematical proficiency include:

1. Calculating costs based on rate structures: postal, fax, telephone, etc.
2. Calculating totals (invoices, credit notes, quotations, proposals, reports, budgets, etc.) percentage discounts, interest, sales tax and GST
3. Managing a petty cash fund
4. Performing a bank reconciliation
5. Preparing spreadsheets for budgeting/tracking purposes, including creating formulas needed to perform required calculations
6. Utilizing the mathematical feature available in most word processing software packages
7. Interpreting and preparing bar graphs, line graphs and pie charts (report, presentation overheads, etc.)
8. Utilizing the mathematical features in word-processing and database programs
9. Utilizing a calculator to add, subtract, divide, and multiply
10. Handling payroll duties including calculation of CPP, UIC, income tax, etc.
11. Managing manual or computerized accounting applications

II. LEARNING OUTCOMES AND ELEMENTS OF THE PERFORMANCE:

A. Learning Outcomes:

1. Perform operations with whole numbers, decimals, and fractions, with and without the use of a calculator, and apply these operations in problem solving situations.
2. Apply the concepts of percentage to solve problems.
3. Apply the concepts of simple and compound interest to solve problems.
4. Use and convert units of measure.
5. Present and interpret quantitative information using descriptive statistics techniques.

B. Learning Outcomes and Elements of the Performance:

1. Perform operations with whole numbers, decimals, and fractions, with and without the use of a calculator, and apply these operations in problem solving situations.

Potential elements of the performance:

- Define whole numbers.
- Round whole numbers.
- Estimate an answer.
- Add, subtract, multiply, and divide whole numbers.
- Find indicator words in application problems.
- Use the four steps for solving application problems.
- Read and write decimals.
- Round decimals.
- Add and subtract decimals.
- Multiply and divide decimals.
- Recognize types of fractions.
- Convert mixed numbers to improper fractions and improper fractions to mixed numbers.
- Write a fraction in lowest terms
- Use the rules for divisibility.
- Add and subtract like and unlike fractions.
- Find the least common denominator.
- Rewrite fractions with a common denominator.
- Add and subtract mixed numbers.
- Multiply and divide fractions and mixed numbers.
- Convert decimals to fractions and fractions to decimals.

**II. LEARNING OUTCOMES AND ELEMENTS OF THE PERFORMANCE
(continued):**

2. Apply concepts of percentage to solve problems.

Potential elements of the performance:

- Write a decimal and fraction as a percent and a percent as a decimal and fraction.
- Write a fractional percent as a decimal.
- Know the three quantities of a percent problem.
- Use the basic percent formula to solve for part, base, and rate.
- Recognize the terms associated with base, rate, and part.
- Find the percent of change.
- Identify an increase or a decrease problem.
- Solve application problems.

3. Apply the concepts of simple and compound interest to solve problems.

Elements of the performance:

- Solve for simple interest.
- Calculate maturity value.
- Determine the number of days in a loan or investment period.
- Define the basic terms used with notes.
- Find the due date of a note.
- Find the principal, rate, and time using the simple interest formula.
- Decide on a period of compounding.
- Use the formulas and tables to find compound amount and compound interest.
- Define the terms *future value* and *present value*.
- Use tables to calculate present value.

4. Use and convert units of measure.

Potential elements of the performance:

- Use the International System of Units (SI).
- Evaluate and use the SI prefixes.
- Convert from one SI (metric) unit to another.
- Convert a quantity from a metric unit to a British unit or vice versa using a table of conversion.
- Convert international currency amounts to Canadian dollars, or vice versa.
- Use units of measure in applied situations.

**II. LEARNING OUTCOMES AND ELEMENTS OF THE PERFORMANCE
(continued):**

5. Present and interpret quantitative information using descriptive statistics techniques.

Potential elements of the performance:

- Construct and analyze a frequency distribution.
- Construct and analyze bar, line, and circle graphs.
- Find the mean, median and mode of a list of numbers.
- Calculate a weighted mean.

III. TOPICS TO BE COVERED:**Approximate Time Frame**

1. Whole Numbers, Fractions, and Decimals	8 hours
2. Percents - Conversion to and from Fractions and Applications	8 hours
3. Interest Calculations	6 hours
4. Metric Conversion	6 hours
5. Statistics, Tables and Graphs	4 hours

IV. LEARNING ACTIVITIES:

Topic Number	Topic Description	Reference Chapter Assignments
1.0	Whole Numbers, Fractions, and Decimals	Chapter 1, pp. 1 - 41 Chapter 2, pp. 43 - 79
2.0	Percents	Chapter 3, pp. 81 – 131
3.0	Interest Calculations	Chapter 8, pp. 303 – 353 Chapter 9, pp. 355 – 387
4.0	Metric Conversion	Handouts
5.0	Statistics, Tables, and Graphs	Chapter 15, pp. 631 - 657

V. REQUIRED RESOURCES / TEXTS / MATERIALS:

1. Text: Business Mathematics, 9th Edition, (2003), Miller, Salzman, and Clendenen, Prentice Hall.
2. Calculator: (Recommended) SHARP Scientific Calculator EL-531G. The use of some kinds of calculators may be restricted during tests.

VI. EVALUATION PROCESS/GRADING SYSTEM:

Regular topic tests will contribute a minimum of **60%** of the overall mark.

While regular tests will normally be scheduled and announced beforehand, there may be an unannounced test on current work at any time. Such tests, at the discretion of the instructor, may be used for up to **30%** of the overall mark.

The instructor will provide you with a list of test dates and other required evaluation information for your class section. Tests may be scheduled out of regular class time.

ATTENDANCE

It is your responsibility to attend all classes during the semester. Research indicates there is a high correlation between attendance and student success.

If you are absent from class, it is your responsibility to find out what work was covered and assigned and to complete this work before the next class. Your absence indicates your acceptance of this responsibility.

Unexcused absence from a test may result in a mark of zero ("0"). Absence may be excused on compassionate grounds such as verified illness or bereavement. On return from an excused absence, you should ask your instructor to schedule the writing of a make-up test. Failure to do so will be considered as an unexcused absence.

<u>Grade</u>	<u>Definition</u>	<u>Grade Point Equivalent</u>
A+	Consistently outstanding	4.00
A	Outstanding achievement	3.75
B	Consistently above average achievement	3.00
C	Satisfactory or acceptable achievement in all areas subject to assessment	2.00
R	Repeat - The student has not achieved the objectives of the course, and the course must be repeated.	0.00

Mathematics
Course Name

MTH 1170-2
Code No.

VI. EVALUATION PROCESS/GRADING SYSTEM (continued):

- X A temporary grade, limited to situations with extenuating circumstances, giving a student additional time to complete course requirements (**See Below**)

CR Credit exemption

The method of calculating your weighted average will be defined by your instructor. Since grades are based upon averages, it follows that good marks in some tests can compensate for a failing mark in another test.

Make-Up Test (if applicable)

An "X" grade may be assigned at the end of the regular semester if you have met **ALL** of the following criteria for the course:

- an overall average between 50% and 59% was achieved
- at least 50% of the tests were passed
- at least 80% of the scheduled classes were attended
- at least 80% of quizzes and assignments were submitted
- all of the topic tests were written

If you are assigned an "X" grade, you may convert it to a "C" grade by writing a make-up test on topics agreed to by the instructor. This test will be available at the time agreed to by your instructor.

At the end of the regular term, it is your responsibility to obtain your results from your instructor and, in the event of an "X" grade, to inquire when the make-up test will be available.

The score you receive on this make-up test will replace your original test score and be used to re-calculate your weighted average. If the re-calculated average is 60% or greater, a "C" grade will be assigned. If the re-calculated average is 59% or less, an "R" grade will be assigned.

"R" and "X" Grades at the end of the Semester

If an "X" grade is not cleared by the specified date, it will become an "R" grade. Except for extenuating circumstances, an "X" grade in Math will not be carried into the next semester.

"R" Grades during the Semester

A student with a failing grade and poor attendance (less than 80% attendance) may be given an "R" at any time during the semester.

Mathematics
Course Name

MTH 1170-2
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VII. SPECIAL NOTES:

Special Needs

Students with special needs (e.g. physical limitations, visual impairments, hearing impairments, learning disabilities), are encouraged to discuss required accommodations with the professor and/or contact the Special Needs Office.

Advanced Standing

Students who have completed an equivalent post-secondary course must bring relevant documents to the Coordinator, Mathematics Department.

Retention of Course Outlines

It is the responsibility of the student to retain all course outlines for possible future use in gaining advanced standing at other post-secondary institutions.

Substitute course information is available at the Registrar's office.

The instructor reserves the right to alter the course as he/she deems necessary to meet the needs of the students.

VIII. PRIOR LEARNING ASSESSMENT:

There is a MTH1170 Challenge exam in place.

Students who wish to apply for advanced credit in the course should consult the instructor or the Prior Learning Assessment Office (E1306).