

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



COURSE OUTLINE

Course Title: Mathematics

Code No.: MTH117-2

Semester: One

Program: Office Administration

Author: The Mathematics Department

Date: August 2000

Previous Outline Dated: August 1999

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 Judith Morris, School of Continuous Learning,  
(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 database programs to produce reports.
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 of 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:**

You may already have some of the skills that are listed as outcomes of this course. In order to have you start at the proper place, you will do a test that covers the five modules of this course. If you receive 80% or better on any module section, you will be exempted from that module and assigned the mark you received on the test section as your module mark. You have the option of completing a module from which you have been exempted. Once you choose to do the module, the test mark you receive at the completion of the module stands, even if it is lower than the original mark.

You will receive your test results that will indicate which modules you must complete. Details of the work to be completed for each module can be found on the WEB-CT Business Math course. You will be given a user id and password for this course. Read the Getting Started section the first time you use this online study guide. Remember the information will be there for you to refer back to as you may require it.

**IV. LEARNING ACTIVITIES:**

Modules are made up of a number of lessons. The basic lesson format consists of three activities:

- Read from the text
- Do exercises from the text
- Do additional exercises online, if required.

The modules also have a review section and an online application section. Finally an online quiz is available to help you decide if you are ready to do the test.

You are responsible for scheduling your time so that you can complete the modules within the semester. You will have test deadlines to meet. These are listed in the Course Schedule section of WEB-CT Business Math course.

The scheduled classes will not be like the traditional lecture-style class. During the scheduled class times, your professor will be available to help with any problems you may be having. The professor may also take time to clarify points other students have raised through email or office visits. Mini-lessons may be taught to groups of students working on the same module lesson. You might work with fellow students to solve problems. A variety of activities will take place to meet your needs. While you might be tempted to skip class, your attendance at all classes will help you complete the required work on schedule.

Specific homework assignments are not given; however, you are expected to complete the module work as indicated. This will likely require you to spend more time than the allotted classroom hours. You will need to have access to the internet. Computers are available in the labs, The Learning Centre, and the Learning Resource Centre. Build time for this into your study schedule.

If you have been exempted from some modules, you will likely find that you will finish the course work before the semester is over. Once you have successfully completed all the course requirements, you will not be expected to attend class. This means you might have a few extra hours to spend on other courses during the last weeks of the semester when time is at a premium.

**V. REQUIRED RESOURCES / TEXTS / MATERIALS:**

1. Text: Business Mathematics, Eighth Edition, (2000), 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.
3. WEB-CT Business Math course (online study guide)

**VI. EVALUATION PROCESS/GRADING SYSTEM:****TESTS**

You can schedule module tests when you are ready to write them. Complete the module review and online practice quiz to make sure you are ready for the test. You will only get one attempt at the module test.

Once you are ready for the test, get a test form from your professor. Bring the form to the Testing Centre in the Counselling Office to schedule your test. Show up ready and equipped to write the test at the scheduled time.

In order to help you complete this course within the semester, tests must be completed by the deadlines indicated on the test schedule. If you have not written the test in the Testing Centre by the date indicated, you will be writing it in the classroom during the last scheduled math class of the deadline week.

**Test Schedule**

Module	Deadline Date
1	Week of September 18, 2000
2	Week of October 16, 2000
3	Week of November 6, 2000
4	Week of November 27, 2000
5	Week of December 11, 2000

In the event of extenuating circumstances, contact your professor to discuss the matter.

**ATTENDANCE**

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

**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.

**VI. EVALUATION PROCESS/GRADING SYSTEM (continued):**

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<u>Grade</u>	<u>Definition</u>	<u>Grade Point Equivalent</u>	
A+	Consistently outstanding	90% - 100%	4.00
A	Outstanding achievement	80% - 89%	3.75
B	Consistently above average achievement	70% - 79%	3.00
C	Satisfactory or acceptable achievement in all areas subject to assessment	60% - 69%	2.00
R	Repeat - The student has not achieved the objectives of the course, and the course must be repeated.	Less than 60%	0.00
X	A temporary grade, limited to situations with extenuating circumstances, giving a student additional time to complete course requirements ( <b>See Below</b> )		

CR Credit exemption

The method of calculating your weighted average will be:

Module	Weight
1	25%
2	25%
3	18.75%
4	18.75%
5	12.5%
Total	100%

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:

- 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

#### **VI. EVALUATION PROCESS/GRADING SYSTEM (continued):**

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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.

### **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.

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**VIII. PRIOR LEARNING ASSESSMENT:**

There is a MTH117 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 (E2203).