

SAULT COLLEGE OF APPLIED ARTS AND TECHNOLOGY

SAULT STE. MARIE, ON

COURSE OUTLINE

COURSE TITLE: Mathematics

CODE NO: MTH 117-2

SEMESTER: One

PROGRAM: Office Administration

AUTHOR: J. McGauley

DATE: August 1997

PREVIOUS OUTLINE DATED: August 1996

APPROVED:

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TOTAL CREDITS:

PREREQUISITES: None

SUBSTITUTE(S): MTH 111, MTH 113, MTH 120, MTH 142

LENGTH OF COURSE:

TOTAL CREDIT HOURS: 32

I. COURSE DESCRIPTION:

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

Administrative support staff 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. STUDENT PERFORMANCE OBJECTIVES:

After studying each of the indicated topics, the student should be able to perform the objectives that follow:

Topic 1: Whole Numbers, Fractions, and Decimals

1. Read and write whole numbers from zero to nine hundred ninety-nine billion.
2. Round whole numbers to a specified place or digit.
3. Add, subtract, multiply and divide whole numbers of four digits or less without an electronic calculator.
4. Recognize types of fractions and convert between improper fractions and mixed numbers.
5. Reduce fractions to lowest terms or write fractions in high terms.
6. Find the lowest common denominator of no more than four fractions.
7. Add, subtract, multiply and divide fractions and mixed fractions with up to two digit denominators without a calculator.
8. Find and use reciprocals.
9. Add, subtract, multiply and divide whole numbers and fractions using a calculator. (Sharp EL-531)
10. Solve practical problems involving whole numbers and fractions.
11. Recognize, read and write pure and mixed decimal numbers with up to six places of decimal.
12. Round decimals to the nearest digit.
13. Add, subtract, multiply and divide decimal numbers of four digits or less without a calculator.
14. Convert decimals to fractions and fractions to decimals.
15. Add, subtract, multiply and divide decimals numbers with a calculator. (Sharp EL-531)
16. Solve practical problems involving decimal numbers.

Topic 2: Percents

1. Change decimals and fractions to percents.
2. Change percent to decimals and fractions.
3. Understand and use the percentage formula to find either the percentage, rate, or base.
4. Solve practical problems involving percent and percentage including percent of increase or decrease, and sequential discounts.
5. Write ratios and set up and solve proportions based on practical applications.

Topic 3: Interest Calculations

1. Calculate simple, exact, and compound interest.
2. Calculate interest using proper interest rates.

II. STUDENT PERFORMANCE OBJECTIVES (continued):

Topic 4: Units of Measurement

1. Understand the meaning of the prefixed kilo, centi and milli of the International System of Units (or metric system).
2. Convert a quantity from one metric unit to another metric unit.
3. Using a table of conversion, convert a quantity from a metric unit to a British unit or vice versa.
4. Convert areas and volumes from one unit to another.
5. Convert international currency amounts to Canadian dollars, or vice versa.

Topic 5: Tables, Graphs and Statistics

1. Understand how to read and find information in a table.
2. Read, interpret, and draw bar graphs, line graphs and circle graphs.
3. Define the arithmetic mean, median, mode and range.
4. Calculate the arithmetic mean (with or without a calculator), median, mode and range.

III. TOPICS TO BE COVERED:

Approximate Time Frame

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|---|----------|
| 1. Whole Numbers, Fractions, and Decimals | 10 hours |
| 2. Percents - Conversion to and from Fractions and Applications | 5 hours |
| 3. Interest Calculations | 5 hours |
| 4. Metric Conversion | 5 hours |
| 5. Graphs and Tables | 5 hours |

IV. LEARNING ACTIVITIES:

TOPIC NUMBER	TOPIC DESCRIPTION	REFERENCE CHAPTER ASSIGNMENTS
1.0	WHOLE NUMBERS, DECIMALS AND FRACTIONS	Text: Questions
1.1	Reading and writing large numbers Place value	pages 1-37
1.2	Rounding off numbers	
1.3	Adding and subtracting fractions	pages 82-98
1.4	Multiply and divide fractions and mixed fractions	
1.5	Decimal fractions	
1.6	Operations with decimals	
2.0	PERCENTS	
2.1	Percent to decimal	pages 98-128
2.2	Decimal to percent	
2.3	Ratios and proportions	
2.4	Application	
3.0	INTEREST CALCULATIONS	
3.1	Compiling simple interest	pages 301-319 and pages 326-337
3.2	Use of interest tables	
3.3	Compiling exact interest	
3.4	Computing compound interest	pages 339-351 and pages 355-363
4.0	METRIC CONVERSIONS	Handout
4.1	Changing metric to metric units	
4.2	Changing metric to English units	
4.3	Application of metric and English conversions	
5.0	GRAPHS AND TABLES	
5.1	Reading and constructing graphs: bar graph, line graph and pie chart	pages 129-166
5.2	Statistics	

V. REQUIRED RESOURCES / TEXTS / MATERIALS:

1. Text: "Brief Edition Business Math", Fourth Edition, (1996), Cleaves and Hobbs, Prentice Hall.

Text: "Essentials of Math." Fifth Edition, Alvey, George. McGraw Hill.

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:

MAJOR ASSIGNMENTS AND TESTS

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.

At the discretion of the instructor, there may be a mid-term exam and there may be a final exam, each of which can contribute up to 30% of the overall mark.

The instructor will provide you with a list of test dates. 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 from your instructor 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.

VI. EVALUATION PROCESS/GRADING SYSTEM (Continued):**METHOD OF ASSESSMENT (GRADING METHOD)**

A+	Consistently outstanding	(90%-100%)
A	Outstanding Achievement	(80% - 89%)
6	Consistently above average achievement	(70% - 79%)
C	Satisfactory or acceptable achievement in all areas subject to assessment	(55% - 69%)
X or R	A temporary grade, limited to situations with extenuating circumstances, giving a student additional time to complete course requirements (See below)	(45% - 54%)
R	Repeat - The student has not achieved the objectives of the course, and the course must be repeated	(0% - 44%)
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:

- an overall average between 45% and 54% was achieved
- at least 50% of the tests were passed
- at least 80% of the scheduled classes were attended
- 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 55% or greater, a "C" grade will be assigned. If the re-calculated average is 54% or less, an "R" grade will be assigned.

VI. EVALUATION PROCESS/GRADING SYSTEM (Continued):**"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**

If you are a student with special needs (e.g. physical limitations, visual impairments, hearing impairments, learning disabilities), you are encouraged to discuss required accommodations with the instructor and/or contact the Special Needs Office, Room E1204, Ext. 493, 717, 491 so that support services can be arranged for you.

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 MTH 117 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).