

SAULT COLLEGE OF APPLIED ARTS AND TECHNOLOGY

SAULT STE. MARIE, ON

COURSE OUTLINE

COURSE TITLE: College Preparatory Mathematics

CODE NO: MTH91-5

SEMESTER: One

PROGRAM: General Arts and Science - College Preparatory

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DATE: June 1997

PREVIOUS OUTLINE DATED: May 1996

APPROVED:


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TOTAL CREDITS:

PREREQUISITES: None

SUBSTITUTE(S): MTH 098

LENGTH OF COURSE:

TOTAL CREDIT HOURS: 85

I. COURSE DESCRIPTION:

The objectives of this course are to increase the student's speed, accuracy and skill in performing basic arithmetic calculations and operations on algebraic expressions, as well as the solution of practical problems involving linear equations in one variable.

Emphasis will be placed on developing the student's ability to state a ratio in simplified form, and to solve basic problems dealing with direct and proportions.

A study of measurement will enable the student to use metric and Imperial units of length, capacity and mass to change from one system of units to the other, to calculate perimeter, area, and volume. An introduction to some basic descriptive statistics will allow the student to accurately interpret tables and graphs.

II. STUDENT PERFORMANCE OBJECTIVES:

The basic objectives are that the student develop an understanding of the methods studied, demonstrate a knowledge of the facts presented and show an ability to use these in the solution of problems. To accomplish these objectives, exercises are assigned. Test questions will be of near equal difficulty to questions assigned in the exercises. The level of competency demanded is the level required to obtain an overall passing average on the tests. The material to be covered is listed below.

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

1. Whole Numbers	5 hours
2. Fractions	10 hours
3. Decimals	5 hours
4. Ratio and Proportion	10 hours
5. Percent	10 hours
6. Metric and English Systems	10 hours
7. Introduction to Geometry and the Pythagorean Theorem	10 hours
8. Integers	5 hours
9. Algebraic Expressions & Equations	10 hours
10. Statistics	5 hours

IV. LEARNING ACTIVITIES:

TOPIC NUMBER	TOPIC DESCRIPTION	REFERENCE CHAPTER ASSIGNMENTS
		Text: Basic Mathematical Skills with Geometry - James Streeeter, Donald Hutchinson, and Louis Hoelzle, Third Edition.
1.0	WHOLE NUMBERS	Exercises are to be done without the aid of a calculator.
1.1	Determining the place value of a digit Writing a numeral in words Writing a numeral, given its word name	Ex. 1.1 pages 9-10
1.2	Adding any group of whole numbers	Ex. 1.5 pages 29-30
1.3	Rounding a whole number to any place value Estimating sums by rounding Using the symbols < and >	Ex. 1.6 pages 43-46
1.4	Subtracting whole numbers Estimating differences by rounding	Ex. 1.8 pages 57-62
1.5	Solving word problems involving addition and subtraction of whole numbers	Ex. 1.9 pages 71-76
1.6	Multiplying any two whole numbers	Ex. 2.4 pages 103-106
1.7	Multiplying by whole numbers ending in zero Estimating products by rounding	Ex. 2.5 pages 111-114
1.8	Order of Operations	Ex. 2.6 pages 117-118
1.9	Solving word problems involving multiplication of whole numbers	Ex. 2.7 pages 127-132
1.10	Dividing with zero and one Dividing whole numbers by single digit numbers	Ex. 3.2 pages 157-158 Ex. 3.3 pages 163-165
1.11	Dividing whole numbers by two or three digit numbers	Ex. 3.4 pages 173-174
1.12	Using the rules for the order of operations	Ex. 3.6 pages 179-182
1.13	Solving word problems involving division of whole numbers	Ex. 3.7 pages 189-192

IV. LEARNING ACTIVITIES (Continued):

TOPIC NUMBER	TOPIC DESCRIPTION	REFERENCE CHAPTER ASSIGNMENTS
1.14	Finding the average of a group of whole numbers	Ex. 3.8 pages 195-198
1.15	Powers of whole numbers	Ex. 2.8 pages 137-141
2.0	FRACTIONS	Exercises are to be done without the aid of a calculator.
2.1	Finding the prime factors of a whole number	Ex. 4.2 pages 215-216
2.2	Finding the lowest common multiple (LCM) of a group of numbers	Ex. 4.4 pages 229-230
2.3	Identifying proper fractions, improper fractions and mixed numbers	Ex. 5.2 pages 259-260
2.4	Converting from one type of fraction to another	Ex. 5.3 pages 265-266
2.5	Equivalent fractions	Ex. 5.4 pages 269-270
2.6	Simplifying fractions by reducing to lowest terms	Ex. 5.5 pages 277-280
2.7	Building fractions	Ex. 5.6 pages 289-292
2.8	Multiplying fractions	Ex. 6.1 & 6.2 pages 299-300 & 305-308
2.9	Dividing fractions	Ex. 6.4 pages 331-334
2.10	Finding the least common denominator (LCD) for a group of fractions	Ex. 7.2 pages 349-350
2.11	Adding fractions	Ex. 7.3 pages 355-358
2.12	Subtracting fractions	Ex. 7.4 pages 363-366
2.13	Adding and subtracting mixed numbers	Ex. 7.5 pages 375-378
2.14	Solving word problems involving fractions	Ex. 7.6 pages 383-388
3.0	DECIMALS	Exercises are to be done without the aid of a calculator.
3.1	Identifying place values in decimal fractions Writing decimal fractions in words Writing decimal fractions, given their word forms Comparing the sizes of decimal fractions	Ex. 8.1 pages 411-414
3.2	Rounding decimals	Ex. 8.2 pages 417-418
3.3	Adding decimals	Ex. 8.3 pages 423-428

IV. LEARNING ACTIVITIES (Continued):

TOPIC NUMBER	TOPIC DESCRIPTION	REFERENCE CHAPTER ASSIGNMENTS
3.4	Subtracting decimals	Ex. 8.4 pages 433-437
3.5	Multiplying decimals	Ex. 8.5 pages 455-449
3.6	Dividing a decimal by a whole number	Ex. 9.1 pages 467-470
3.7	Dividing a decimal by a decimal	Ex. 9.2 pages 477-480
3.8	Converting a common fraction to a decimal Comparing the sizes of common fractions and decimals	Ex. 9.4 pages 493-495
3.9	Converting a decimal to a common fraction	Ex. 9.5 pages 501-502
4.0	RATIO AND PROPORTION	Exercises are to be done with the aid of a calculator.
4.1	Writing the ratio of two or more numbers or quantities in simplest form	Ex. 10.1 pages 521-524
4.2	Determining whether or not a given proportion is a true statement	Ex. 10.2 pages 529-532
4.3	Solving a proportion for an unknown term	Ex. 10.3 pages 537-540
4.4	Solving word problems by using proportions	Ex. 10.4 pages 545-550
5.0	PERCENT	Exercises are to be done without the aid of a calculator.
5.1	Describing what is meant by "percent"	Ex. 11.1 pages 563-564
5.2	Changing a percent to a common fraction or mixed number Changing a percent to a decimal	Ex. 11.2 pages 569-572
5.3	Changing a decimal or a fraction to a percent	Ex. 11.3 pages 577-580
5.4	Identifying and finding the rate base and amount in an application	Ex. 11.4 pages 585-588 Ex. 11.5 pages 597-600
5.5	Solving word problems involving percentage	Ex. 11.6 pages 609-616
6.0	MEASUREMENT	Exercises are to be done with the aid of a calculator.
6.1	Units of the English System	Ex. 12.1 pages 641-644
6.2	Metric prefixes	Handout assignments
6.3	Converting between metric and imperial units of length	Ex. 13.1 pages 709-724
6.4	Metric units of capacity	Ex. 13.2 pages 717-720
6.5	Converting between metric and imperial units of capacity	Ex. 13.3 pages 725-727

IV. LEARNING ACTIVITIES (Continued):

TOPIC NUMBER	TOPIC DESCRIPTION	REFERENCE CHAPTER ASSIGNMENTS
7.0	INTRODUCTION TO GEOMETRY AND PYTHAGOREAN THEOREM	Exercises are to be done with the aid of a calculator.
7.1	Perimeter and Circumferences	Ex. 12.3 pages 657-666
7.2	Area	Ex. 12.4 pages 669-681
7.3	Volume	Ex. 12.5 pages 85-692 Handout assignment
7.4	Pythagorean Theorem	Ex. 14.3 pages 761-765
8.0	INTEGERS	Exercises are to be done with the aid of a calculator.
8.1	Describing what is meant by an "integer" Finding the opposite and absolute value of a number	Ex. 16.1 pages 829-832
9.0	ALGEBRAIC EXPRESSIONS AND EQUATIONS	Exercises are to be done with the aid of a calculator.
9.1	Evaluating algebraic expressions, given specified values for the variables	Ex. 17.1 pages 879-882
9.2	Solving equations in one variable	Ex. 17.2 pages 895-898 Ex. 17.3 pages 909-912
9.3	Translating a word phrase to an algebraic expression Solving applications using algebraic equations in one variable	Ex. 17.4 pages 921-926
10.0	STATISTICS	Exercises are to be done with the aid of a calculator.
10.1	Finding the mean, median, and mode for a set of data.	Ex. 15.1 pages 777-778
10.2	Interpreting and creating frequency distribution	Ex. 15.2 pages 783-786
10.3	Interpreting statistical graphs	Ex. 15.3 pages 793-796

V. REQUIRED RESOURCES / TEXTS / MATERIALS:

1. Text: "Basic Math Skills", Third Edition, Streeter and Alexander
2. An electronic calculator will be required for Topics 2, 3 and 4. The use of some kinds of calculators may be restricted during tests. Recommended: SHARP Scientific Calculator EL-531G.

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%)
B	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 91 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).