

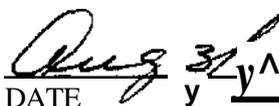
SAULT COLLEGE OF APPLIED ARTS & TECHNOLOGY  
SAULT STE. MARIE, ONTARIO

COURSE OUTLINE

COURSE TITLE: MATHEMATICS FOR ADMINISTRATION OF MEDICATIONS  
CODE NO: NUR 109 SEMESTER ONE  
PROGRAMME: NURSING  
DATE: SEPTEMBER, 1992 PREVIOUS OUTLINE DATED: SEPT/91  
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APPROVED:

  
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DATE y 31 y<sup>^</sup>

OCT 13 1992

**MATHEMATICS FOR ADMINISTRATION OF MEDICATIONS**

**NUR 109**

COURSE NAME

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**TOTAL CREDIT HOURS:** 25 (Section A - 10 hours)  
(Section B - 15 hours)

**PREREQUISITE(S):** Grade 12 Mathematics (minimum general level)

**I. PHILOSOPHY/GOALS:**

This course is designed to assist beginning nursing students to learn the mathematical skills required for the administration of medications. Credit for Section A may be obtained by means of a challenge examination. Emphasis is placed on mastery of skills, since this is essential for client safety in nursing practice.

**II. STUDENT PERFORMANCE OBJECTIVES;**

Upon successful completion of this course the student will:

1. demonstrate 80-100% accuracy in the addition, subtraction, multiplication and division of whole numbers, mixed numbers, fractions and decimals.
2. demonstrate 80-100% accuracy in converting decimals, percent and fractions.
3. demonstrate the ability to solve for an unknown value using ratio and proportion, and will express ratios as fractions, decimals and percents.
4. demonstrate knowledge of the specified units of the S.I. system of measurement and be able to convert selected units to other systems of measurement.
5. demonstrate the ability to write 24-hour time and dates in metric system.
6. recognize the common abbreviations used in medication orders and interpret medication orders accurately.
7. accurately calculate dosages of oral and parenteral medications.
8. accurately calculate dosages of medications based on body weight.
9. accurately calculate percent and ratio strengths of solutions.
10. accurately calculate the rate of flow of intravenous infusions or length of time it will run.

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**III. TOPICS TO BE COVERED:**

Section A Review of the following:

1. Addition, subtraction, multiplication and division of whole numbers.
2. Addition, subtraction, multiplication and division of mixed numbers and fractions.
3. Addition, subtraction, multiplication and division of decimals.
4. Converting decimals, percent and fractions
5. Ratio and proportion.

Section B

1. Base and subunits of the S.I. system of measurement.
2. Conversion of selected units of S.I. system to other systems of measurement.
3. Times in 24-hour time and dates in metric system.
4. Abbreviations used in administration of medications.
5. Calculating dosages of oral and parenteral medications.
6. Calculating dosages using body weights.
7. Calculating percent or ratio strengths of solutions.
8. Calculating the rate of flow of intravenous infusions and the length of time the IV will run.

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IV. OBJECTIVES

LEARNING ACTIVITIES

SECTION A

1. will demonstrate 80-100% accuracy in the addition, subtraction, multiplication and division of whole numbers, mixed numbers, fractions and decimals.

Do not use calculators in any of the tests or exercises.

will demonstrate 80-100% accuracy in converting decimals, percent and fractions.

whole numbers

Complete Preliminary Assessment  
pp. 3-7 of text (omit 1-8)

Complete exercises on whole numbers  
- addition  
- subtraction  
- multiplication  
- division

Review if necessary

b) mixed numbers and fractions

Review and complete exercises on mixed numbers and fractions.  
pp. 14-23 in text

Review if necessary

**Test #1 on Whole Numbers, Mixed Numbers and Fractions**

**IV. OBJECTIVES**

**LEARNING ACTIVITIES**

c) decimals

Review and complete exercises on decimals.  
pp. 23-31 in text

Review if necessary

3. will demonstrate the ability to solve for an unknown value using ratio and proportion and will express ratios as fractions, decimals and percents

a) ratio and proportion

Review and complete exercises on Ratio, Proportion and Percentages.  
pp. 31-39 in text

b) conversions

Complete post-test in text.

Review if necessary.

**Test #2 - on Decimals, Ratio and Proportion and Percentages**

will demonstrate knowledge of the specified units of the S.I. system of measurement and be able to convert selected units to other systems of measurement.

Complete exercises on systems of measurement,  
pp. 44-55 in text

Review if necessary.

will demonstrate the ability write 24-hour time and dates in the metric system.

Complete exercises on 24-hour time and dates in metric.  
pp. 56-60 in text

IV OBJECTIVES

LEARNING ACTIVITIES

SECTION B

- |  |  |
|--|--|
| 6. will recognize the common abbreviations used in medications order and interpret medication orders accurately  | Review abbreviations handout and Appendix K pp. 185-188 in text<br><br>Read text pp. 63-66<br><br>Complete exercises on abbreviations and medication orders in class.<br><br>Review if necessary.  |
| 7. will accurately calculate dosages of oral and parenteral medications.<br>a) calculate oral solids<br>b) calculate oral liquids<br>c) calculate parenteral medications | <b>Test #1 - on Metric, Conversions, Abbreviations, Time and Dates.</b><br><br>Complete exercises on oral and parenteral medications. pp. 67-81, 85-99, in text<br><br>Familiarize yourself with specified syringes and medicine containers.<br><br>Review if necessary. |
| 8. will accurately calculate dosages of medications based on body weight   | Read and complete exercises on dosages of medications based on body weight, pp. 99-101 in text<br><br>Review if necessary  |

IV

**OBJECTIVES**

will accurately calculate percent and ratio strengths of solutions.

10. will accurately calculate the rate of flow of intravenous infusions or length of time it will run.

**LEARNING ACTIVITIES**

Complete exercises on percent and ratio strength of solutions  
pp. 131-136 in text  
Review if necessary.

**Test #2 - on Oral and Parenteral Meds, Ratio and Percent Strength Solutions**

Complete exercises on flow rates of intravenous solutions.  
pp. 121-127 in text  
Complete Post-test on:  
pp. 143-156 in text  
(Omit #1-4)

Review if necessary

**Test #3 - on all topics.**

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**V, EVALUATION METHODS; (INCLUDES ASSIGNMENTS, ATTENDANCE REQUIREMENTS, ETC.)**

1. Credit for Section A may be obtained by means of a challenge examination given at the beginning of the course. All students are required to take Section B. Section A must be passed before taking Section B.
2. One supplemental exam will be offered in Section A of the course.
3. A passing grade must be obtained in Section A and Section B. A passing grade is at least an "A" (80-89%); a mark below 80% is an "R" (repeat).
4. In Part B you must receive at least 80% on Test #2 or Test #3. If your total marks equal 80/100 without passing one or the other, you will be required to write the supplemental test.
5. One supplemental exam will be offered in Section B of the course.
6. Calculators are not allowed in tests.
7. Failure to achieve a passing grade in this course will affect the student's progress in the program. If students do not pass NUR 109, they are unable to administer medications clinically and, therefore, do not complete the objectives of the clinical course in Semester 2.
8. Absence from Tests

If you are unable to attend class for a test, you must contact the Health Sciences' office (759-6774, Ext. 689) BEFORE the test. ^1 Z2H fail to do so, you will not be allowed to write and will receive a mark of zero. You must make individual arrangements with me on the first day back to school. If you fail to do so, you will not be allowed to write and will receive a mark of zero.

A doctor's certificate may be requested by the teacher.

Those students who are given the opportunity to write the test at a later date may have a change in format and/or questions.

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V. EVALUATION METHODS CONTINUED . . .9. Section A (tentative schedule - subject to change)

TEST #	DATE		UNIT	MARKS	YOUR MARK
Test #1	Oct. 2 Oct. 9	OR	Whole Numbers, Mixed Numbers and Fractions	50	
Test #2	Oct. 16 Oct. 23	OR	Decimals and Conversion Ratio & Proportion	50	
<b>TOTAL</b>				<b>100</b>	

You must receive 80 marks out of 100 to pass this section  
You must pass this section BEFORE taking Section B.

Section B (tentative schedule - subject to change)

TEST #	DATE		UNIT	MARKS	YOUR MARK
Test #1	Nov. 12 Nov. 19	OR	Units of S.I., Conversion, Abbreviations, Times & Dates	10	
Test #2	Dec. 10 Dec. 17	OR	Oral & Parenteral Meds, Percent & Ratio Strength of Solutions	40	
Test #3	Week of Dec. 21		All Topics (includes I v rates)	50	
<b>TOTAL</b>				<b>100</b>	

You must receive 80 marks out of 100 to pass this section  
You must pass this section to be able to administer  
medications in the clinical area.

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**VI. REQUIRED STUDENT RESOURCES;**

Duff;- Deborah, L. and Aylward, Joan M. , A Metric Guide for Health Professionals on Dosages and Solutions, W. B. Saunders Company, Toronto, Ontario, 19 88

**VII, ADDITIONAL RESOURCE MATERIALS AVAILABLE IN THE COLLEGE LIBRARY BOOK SECTION:**

Handouts and further resources are given to the students as the need arises.

**VIII. SPECIAL NOTES:**

Students with special needs (eg. physical limitations, visual impairments, hearing impairments, learning disabilities) are encouraged to discuss required accommodations confidentially with the teacher.

Your teacher reserves the right to modify the course as he/she deems necessary to meet the needs of students.