SAULT COLLEGE OF APPLIED ARTS & TECHNOLOGY

SAULT STE. MARIE, ONTARIO

COURSE OUTLINE

COURSE TITLE	MATHEMATICS FOR ADMINISTRATION OF MEDICATIONS
CODE NO:	NUK 109 ONE **SEMESTER!**
PROGRAM:	NURSING
DATE:	SEPTEMBERr 1990 SEPT/89 **PREVIOUS OUTLINE DATED:**
AUTHOR:	MARGARET HURTUBISE

APPROVED; _____   _____ ^^/4V>
              DEAN   DATE   /

MATHEMATICS FOR ADMINISTRATION OF MEDICATIONS **NUR 109**

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

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

I. <u>PHILOSOPHY/GOALS</u> t

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,

11. <u>STUDENT PERFORMANCE OBJECTIVES</u>;

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. solve for an unknown value using ratio and proportion, and will express ratios as fractions, decimals and percents.

4. learn the specified units of the S.I, system of measurement and be able to convert selected units to other systems of measurement.

5. learn the common abbreviations used in medication orders and interpret medication orders accurately.

6. accurately calculate dosages of oral and parenteral medications.

7. calculate percent and ratio strengths of solutions-

8. accurately calculate the rate of flow of intravenous infusions.

9. accurately calculate dosages of medications based on body weight.

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III. TOPICS TO BE COVERED:

Section A

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. Ration and proportion.

Section B^

1. Base and subunits of the S.l. system of measurement.

2. Conversion of selected units of S»I- system to other systems of measurement,

3. Abbreviations used in administration of medications.

4- Calculating dosages of oral and parenteral medications

5. Calculate percent or ratio strengths of solutions.

6. Calculate the rate of flow of intravenous infusions.

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IV. OBJECTIVES	**LEARNING ACTIVITIES**
SECTION A	
will demonstrate 80-100% accuracy in the additioni subtraction/ multiplication and division of whole numbers, mixed numbersf fractions and decimals.	Do not use calculators in any of the tests or exercises.
will demonstrate 80-100% accuracy in converting decimalsr percent and fractions.	Text: Dosage Calcuations in S.I Units
a) whole numbers	Module $l^\wedge t$ Complete pre-test pp. 1
	Complete exercises on whole numbers - addition - subtraction - multiplication - division Complete post-test pp. 9
	Review if necessary
b) mixed numbers and fractions	Module $2^\wedge$: Complete pre-test pp. 13
	Complete exercises on mixed numbers and fractions.
	Complete post-test pp. 29
	Review if necessary
	Test #1 on Modules 1 & 2

IV OBJECTIVES	LEARNING ACTIVITIES
c) decimals	Module 3^: Complete pre-test pp. 33 Complete exercises on decimals. Complete post-test pp. 45 Review if necessary
3- solve for an unknown value using ratio and proportion and will express ratios as fractions, decimals and percents a) ratio and proportion b) conversions	Module 4^5 Complete pre-test pp. 49 Complete exercises on ratio and proportion. Complete post-test pp. 56 Review if necessary. **Test #2 - on Modules 3** & **4** **Test #3 - on Modules 1 - 4**
4. learn the specified units of the S.I. system of measurement and be able to convert selected units to other systems of measurement.	Module 5^: Complete pre-test pp. 59 Complete exercises on systems of measurement. Complete post-test pp- 70 Review if necessary.

IV. OBJECTIVES	LEARNING ACTIVITIES

SECTION B

5. learn the common abbreviations used in medication orders and interpret medication orders accurately.

<u>Module 6</u>^:
Review abbreviations hand out.

Complete pre-test pp. 73

Complete exercises on abbreviations and medication orders.

Complete post-test pp. 80

Review if necessary.

Test #1 - on Modules 5 & **6**

6. accurately calculate dosages of oral and parenteral medications.

   a) calculate oral solids

   b) calculate oral liquids

   c) calculate parenteral medications

<u>Module 2</u>'
Complete pre-test pp. 83

Complete exercises on oral and parenteral medications.

Familiarize your- self with specified syringes and medicine containers.

Complete post-test pp. 96

Review if necessary.

IV OBJECTIVES	LEARNING ACTIVITIES
Calculate percent and ratio strengths of solutions.	Module 8^: Complete pre-test pp. 99
	Complete exercises on percent and ratio strength.
	Complete post-test pp. 110
	Review if necessary.
	Test #2 - on Modules 7 & **8**
8. Accurately calculate the rate of flow of intravenous infusions.	Module £: Complete pre-test pp. 113
	Complete exercises on flow rates of intravenous solutions.
	Complete post-test pp. 118
	Review if necessary

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IV. OBJECTIVES	**LEARNING ACTIVITIES**
9. Will accurately calculate dosages of medications based on body weight*	Module IQ; Complete pre-test pp, 121 (Only complete those questions dealing with body weight).
	Complete exercises on dosages of medications based on body weight.
	Complete post-test PP• 133 (Only complete those questions dealing with body weight).
	Review if necessary.
	Test #3 - on Modules 5-10

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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- 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).

3. One supplemental exam will be offered in Section B of the course.

4. Calculators are not allowed in tests.

5. 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.

6. 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. *lt_* you **fall to do** so, you will not be allowed to write and **will receive** ^ **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. <u>EVALUATION METHODS CONTINUED</u> . . . •

7, <u>Section</u> A (tentative schedule - subject to change)

TEST *I*	DATE	UNIT	MARKS	YOUR MARK
Test #1	Sept. 28 OR Oct* 5	Whole Numbers, Mixed Numbers and Fractions	30	
Test #2	Oct. 26 **OR** Nov. 2	Decimals and Conversions/ Ratio & Proportion	30	
Test #3	Nov. 9 OR	Covers all topics	40	
		TOTAL	**100**	

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

Section B^ (tentative schedule - subject to change)

TEST #	DATE	UNIT	MARKS	YOUR MARK
Test #1	Nov. 23 OR Nov. 30	Units of S.I., Conversion and Abbreviations	20	
Test #2	Dec. 7 OR	Oral & Parenteral Meds, Percent & Ratio, Strength of Solutions	40	
Test #3	Week of Dec. 17	Ail Topics (includes I.V. rates)	40	
		TOTAL	**100**	

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- <u>REQUIRED STUDENT</u> RESOURCES:

Osis, Maureen, <u>Dosage Calculations in S*I, Units</u>, C*V. Mosby
Company Ltd., Toronto

VII. <u>ADDITIONAL RESOURCE MATERIALS AVAILABLE</u> IN THE <u>COLLEGE LIBRARY BOOK SECTION</u>:

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

VIII. <u>SPECIAL NOTES</u>:

. Topics and subjects to change at teacher•s discretion based
on learner*s needs.