

PHM 115
PHARMACEUTICAL CALCULATIONS

COURSE DESCRIPTION:

Prerequisites: Enrollment in the Pharmacy Technology program

Corequisites: PHM 110 and PHM 111 or permission of the program director

This course provides an introduction to the metric, avoirdupois, and apothecary systems of measurement and the calculations used in pharmacy practice. Topics include ratio and proportion, dosage determinations, percentage preparations, reducing and enlarging formulas, dilution and concentration, aliquots, specific gravity and density, and flow rates. Upon completion, students should be able to perform correctly the calculations required to prepare a medication order properly. Course Hours Per Week: Class, 3. Semester Hours Credit, 3.

COURSE OBJECTIVES:

Upon completion of this course, the student will demonstrate practical application of each of the following:

- a. Review of number systems, decimals and fractions.
- b. Units of measure used in pharmacy practice.
- c. Conversions of the metric, apothecary, avoirdupois, and household systems of measure.
- d. Convert Celsius and Fahrenheit temperatures.
- e. Enlarging and reducing formulas.
- f. Concentration, dilution and ratio strength calculations.
- g. Parenteral and admixture calculations.
- h. Chemotherapy calculations.
- i. Density and specific gravity.
- j. Pharmacy business math.
- k. Prescription and medication order interpretation.
- l. Manufacturers' label understanding.

OUTLINE OF INSTRUCTION:

- I. Review of number systems, decimals and fractions
 - a. Numbers and numerals
 - b. decimals
 - c. fractions

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- II. Units of measure used in pharmacy practice
 - a. Metric system
 - b. Apothecary system
 - c. Avoirdupois system
 - d. Household system

- III. Unit conversion
 - a. Metric equivalents
 - b. Metric-apothecary conversion
 - c. Metric-avoirdupois conversion
 - d. Apothecary-avoirdupois conversion

- IV. Compounding formulas
 - a. Interpretation of compounding formulas
 - b. Formula calculations and adjustments

- V. Interpret prescriptions and medication orders
 - a. Abbreviations and format
 - b. Dosage calculations
 - i. Number of doses
 - ii. Total amount of drug
 - iii. Dose size

- VI. Pharmacy business math
 - a. Terminology
 - b. Standard business calculations
 - c. Standard outpatient price calculations

- VII. Parenteral medications, intravenous calculations, and total parenteral nutrition (TPN) therapy
 - a. Parenteral medication calculations
 - b. IV flow rates
 - c. IV time calculations
 - d. Alligation method in TPN preparation
 - e. Milliequivalent calculations

- VIII. Medication label information
 - a. Generic drug names
 - b. Drug strength
 - c. Dosage forms

- IX. Concentration, dilution and ratio strength calculations
 - a. Percentage concentration calculations
 - b. Ratios and solution strength

 - c. Dilute solutions

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- d. Mass balance equation
- X. Intravenous Chemotherapy Calculations
 - a. Body Surface Area
 - b. Body Weight
- XI. Miscellaneous
 - a. Temperature conversion
 - b. Density and specific gravity

REQUIRED TEXTBOOKS AND MATERIALS:

Ballington & Laughlin. Pharmacy Calculations for Technicians. (3rd ed.). EMCParadigm, 2005.

STATEMENT OF STUDENTS WITH DISABILITIES:

Students who require academic accommodations due to any physical, psychological, or learning disability should request assistance from the Disability Services Coordinator within the first two weeks of class. Likewise, students who potentially require emergency medical attention due to any chronic health condition are encouraged to disclose this information to the Disability Services Coordinator within the first two weeks of class. The Coordinator can be contacted by calling 686-3652, (V/TT), or by visiting the Student Services Office, Room 23, of the White Building.