El Paso Community College
Syllabus
Part II
Official Course Description

SUBJECT AREA **Pharmacy Technology**

COURSE RUBRIC AND NUMBER **PHRA 1309**

COURSE TITLE **Pharmaceutical Mathematics I**

COURSE CREDIT HOURS **3 3 : 1**
Credits Lec Lab

I. Catalog Description

Offers pharmaceutical mathematics including reading, interpreting, and solving calculation problems encountered in the preparation and distribution of drugs. A grade of "C" or better is required in this course to take the next course. **Prerequisite: MATH 0301 or by placement exam. (3:1). Lab Fee.**

II. Course Objectives

A. Unit I. Fundamental Pharmaceutical Calculations
1. Identify the relative value of decimals.
2. Express ratio, fraction, and percent as equivalents of each other.
3. Explain the relationship between decimals, common fractions, ratios, and percents.
4. Define the abbreviations used in pharmacy math, such as gr, g, mg, ml, and other abbreviations.
5. Identify the common Roman numerals.

B. Unit II. Systems of Drug Measure
1. List the commonly used units of measure in the metric system and the alternate systems of measure.
2. Distinguish between the units of volume and of weight
3. Express metric weights and volumes using correct notation
4. Convert metric weights and volumes within the system
5. List the symbols, abbreviations, and notation rules for apothecary and household measure
6. Convert between apothecary and household measure to metric units
7. Accurately use the metric system to count and measure
8. Accurately use the household system to count a measure
9. Accurately use the apothecary system to count and measure

C. Unit III. Reading Medication Labels
1. Identify scored tablets, unscored tablets, and capsules
2. Read drug labels to identify trade and generic names.
3. Locate dosage strengths and calculate simple dosages.
4. Measure oral solutions using a medicine cup and oral syringe
5. Describe necessary pieces of information in a complete product label.

D. Unit IV. Dosage Calculations
1. Set up proportions and determine the volume of medication required for a specific dose.
2. Determine if answers are logical in the realm of the problem.
3. Determine final concentration of a prepared product.
4. Calculate ingredients from the determined percentage needed.
5. Accurately determine the correct amounts of ingredient in a pharmaceutical Product.

6. Calculate percent strength using w/w, w/v, and v/v.
7. Recognize appropriate dosage ranges.

E. Unit V. Hypodermic Syringe Calculations

1. Measure parenteral solutions using standard syringes
2. Explain the calibration of syringes
3. Read the parenteral solution labels and identify dosage strengths
4. Identify milliequivalents and other appropriate units as drug dosage measurements.
5. Measure parenteral doses in metric, milliequivalent, unit, percentage concentration, and ratio strength

F. Unit VI. Reconstitution of Powdered Drugs

1. Prepare solutions for powdered drugs using directions printed on vial labels
2. Prepare solutions from powdered drugs using drug literature or PPI's
3. Determine expiration dates and times for reconstituted drugs
4. Calculate dosages from reconstituted drugs

G. Unit VII. Special Problems in Pharmaceutical Calculations

1. Calculate quantities to be admixed with intravenous solutions
2. Calculate dilutions for pediatric administration
3. Determine drip rate, and infusion rate, and for IV solutions
4. Calculate dosage based on body weight
5. Calculate dosage based on dose/ weight / time
6. Calculate the following: overhead, profit (net and gross), discount, turnover, markup, and depreciation.

III. THECB Learning Outcomes (WECM)

1. Solve basic math problems and demonstrate conversion between various systems of measurement including temperature, household, metric, apothecary, and avoirdupois.
2. Perform adult and pediatric dosage calculations.
3. Calculate IV flow rates.

IV. Evaluation

A. Pre-assessment : none at this time

B. Assignments

1. Unit Assignments are designed to assist the student in practicing Mathematic calculating procedures. Activities will be graded on a scale determined by the Instructor Syllabus. Please refer to the calendar for specific due dates.
2. **Assignments are due at the beginning of class unless otherwise instructed. It is the student's responsibility to complete assignments as outlined in this syllabus.**

C. Written unit exams will consist of the following question types: multiple-choice, completion, essay, matching, spelling, analysis, drawing and definition or any combination of these. The number and type of exams will be at the discretion of the instructor. Written projects will be devised and assigned throughout the semester at the instructor's discretion. A comprehensive final exam will be administered at the end of the course

D. A comprehensive final exam will be administered at the end of the course.

E. Grading Scale:

Average Grade	Letter Grade
90-100%	A
80-89%	B
70-79%	C
<70%	F
Incomplete	I
Withdrawn	W

Note: All health occupations programs require a grade of "C" or better in a course for it to be counted toward the degree plan. For this reason, no D's will be awarded.

F. Remediation

At the instructor's discretion, students may be allowed to rewrite papers or retest for higher grades. Students requiring additional help may be referred to tutoring services.

V. Disability Statement (Americans with Disabilities Act [ADA])

EPCC offers a variety of services to persons with documented sensory, mental, physical, or temporary disabling conditions to promote success in classes. If you have a disability and believe you may need services, you are encouraged to contact the Center for Students with Disabilities to discuss your needs with a counselor. All discussions and documentation are kept confidential. Offices located: VV Rm C-112 (831-2426); TM Rm 1400 (831-5808); RG Rm B-201 (831-4198); NWC Rm M-54 (831-8815); and MDP Rm A-125 (831-7024).

VI. 6 Drop Rule

Students who began attending Texas public institutions of higher education for the first time during the Fall 2007 semester or later are subject to a 6-Drop limit for all undergraduate classes. Developmental, ESL, Dual Credit and Early College High School classes are exempt from this rule. All students should consult with their instructor before dropping a class. Academic assistance is available. Students are encouraged to see Counseling Services if dropping because exemptions may apply. Refer to the EPCC catalog and website for additional information.