Bossier Parish Community College
Master Syllabus

Course Prefix and Number: ALHT 116 **Credit Hours:** 3

Course Title: Pharmaceutical Dosage Calculations and Measurements

Course Prerequisites: Placement into Math 099 or higher or completion of Math 098

Textbook: Pickar, G.D., Abernethy, A. P.; Dosage Calculations, 9th edition

Course Description:

Proper calculation of medication dosages; including mathematics review, metric system conversions, dosage measurement equipment, drug orders, drug labels, dosage of drugs, methods to calculate dosages, and IV equipment and drip rate calculations.

Learning Outcomes:

At the end of the course, the student will

A. apply mathematical computations necessary to perform drug calculations and measurements; and
B. utilize appropriate tools, methods, and terminology to prepare calculated medication dosages.

To achieve the learning outcomes, the student will

1. demonstrate knowledge of basic math computations.(A)
2. add, subtract, multiply, and divide fractions and decimals.(A)
3. reduce fractions to lowest terms.(A)
4. round a decimal to a given place value.(A)
5. interpret values expressed in ratios.(A)
6. convert among fractions, decimals, percent, and ratios.(A)
7. compare the values of fractions, decimals, ratios, and percents.(A)
8. apply mathematical computations to solve equations. (A)
9. determine the value of "x" in simple equations.(A)
10. calculate the percentage of a quantity.(A)
11. define basic units of measurement in the metric, apothecary, and household systems. (A,B)
12. interpret and properly express metric, apothecary, and household notation.(A,B)
13. recall metric, apothecary, and household equivalents.(A,B)
14. explain the use of mEq and mL in dosage calculation.(A,B)
15. convert from one unit to another within the same system of measurement. (A)
16. convert among measurement systems.(A)
17. convert between Celsius and Fahrenheit temperature.(A)
18. convert between traditional and international time.(A)

19. recognize and select the appropriate equipment for the medication, dosage, and method of administration ordered.(B)
20. read and write proper medical notation.(B)
21. identify abbreviations and symbols used in calculating medication dosages.(B)
22. classify the notation that specifies the dosage, route, and frequency of the medication to be administered.(B)
23. interpret physician and other prescribing practitioner orders and medication administration records.(B)
24. find and differentiate the brand and generic names of drugs on drug labels.(B)
25. determine the dosage strength or amount of drugs by weight on the drug supplied.(A,B)
26. determine the form in which the drug is supplied.(B)
27. identify the total volume of the drug container.(A,B)
28. differentiate the total volume of the container from the supply dosage.(A,B)
29. locate the directions for mixing or preparing the supply dosage of drugs as needed.(B)
30. identify the administration route.(B)
31. recognize and follow drug alerts.(B)
32. recognize manufacturer's name.(B)
33. check the drug expiration date.(B)
34. identify the lot or control number, National Drug Code, and bar code symbols.(B)
35. differentiate labels for multidose and unit dose containers.(B)
36. identify combination drugs.(B)
37. describe supply dosage expressed as a fraction, ratio, or percent.(A,B)
38. convert all units of measurement on the same system and same size units.(A,B)
39. estimate the reasonable amount of the drug to be administered.(B)
40. use the formula D/H x Q = X and fraction-proportion to convert units of measurement, calculate drug dosage, and calculate the amount to give.(A,B)
41. calculate the number of tablets or capsules that are contained in prescribed dosages.(A,B)
42. calculate the volume of liquid per dose when the prescribed dosage is in solution form.(A,B)
43. apply the three steps for dosage calculations: convert, think, and calculate.(A,B)
44. measure insulin in a matching insulin syringe.(B)
45. compare the calibration of U-100 insulin syringe units to milliliters.(A,B)
46. define and apply the terms solvent, solute, and solution.(B)
47. reconstitute and label medications, supplied in powder or dry form.(A,B)
48. differentiate between varying directions for reconstitution and select the correct set to prepare the dosage ordered.(A,B)
49. calculate the amount of solute and solvent needed to prepare a desired strength and quantity of an irrigating solution or enteral feeding.(A,B)
50. convert pounds and ounces to kilograms.(A,B)
51. consult a reputable drug resource to calculate the recommended safe dosage per kilogram of body weight.(A,B)
52. compare the ordered dosage with the recommended safe dosage.(A,B)
53. determine whether the ordered dosage is safe to administer.(A,B)
54. apply body weight dosage calculations to patients across the life span.(A,B)

55. identify common IV solutions and equipment.(B)
56. calculate the amount of specific components in common IV fluids.(A,B)
57. calculate milliliters per hour: mL/h.(A,B)
58. recognize the calibration or drop factor in gtt/mL as stated on the IV tubing package.(B)
59. apply the formula method to calculate IV flow rate in gtt/min.(A,B)

Course Requirements: To earn a grade of "C" or higher the student must earn 70% of the total points for the course and meet all of the following course requirements.

- achieve a minimum average of 70% on major tests
- successfully complete a minimum of 70% of assigned homework
- achieve a minimum score of 60% on the basic math skills test within 2 attempts without using a calculator

Course Grading Scale:

A- 90% or more of total possible points and a minimum average of 70% on major tests, successful completion of a minimum of 70% of assigned homework, and successful completion of a minimum score of 60% on the basic math skill test within 2 attempts without using a calculator

B- 80% or more of total possible points and a minimum average of 70% on major tests, successful completion of a minimum of 70% of assigned homework and successful completion of a minimum score of 60% on the basic math skill test within 2 attempts without using a calculator

C- 70% or more of total possible points and a minimum average of 70% on major tests, successful completion of a minimum of 70% of assigned homework, and successful completion of a minimum score of 60% on the basic math skill test within 2 attempts without using a calculator

D- 60% or more of total possible points and a minimum average of 70% on major tests, successful completion of a minimum of 70% of assigned homework, and successful completion of a minimum score of 60% on the basic math skill test within 2 attempts without using a calculator

F- less than 60% of total possible points or less than 70% average on major tests or failure to successfully complete a minimum of 70% of assigned homework or failure to successfully complete the basic math skill test with a minimum score of 60% within 2 attempts without using a calculator

Attendance Policy: The college attendance policy is available at http://www.bpcc.edu/catalog/current/academicpolicies.html

Course Fees: This course is accompanied with an additional non-refundable fee for supplemental materials, laboratory supplies, certification exams and/or clinical fees.

Nondiscrimination Statement

Bossier Parish Community College does not discriminate on the basis of race, color, national origin, gender, age, religion, qualified disability, marital status, veteran's status, or sexual orientation in admission to its programs, services, or activities, in access to them, in treatment of individuals, or in any aspect of its operations. Bossier Parish Community College does not discriminate in its hiring or employment practices.

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Reviewed by Wendy McGee April 2019