



Medical Math

COURSE SYLLABUS

2016-2017

School Name: Casey County ATC

Course # FHM 100

Email: paula.bodner@casey.kyschools.us

Hours: 7:45 – 3:45 Monday-Friday

Program Name: Health Sciences

Instructor: Paula Bodner, RN, BSN

Location: Room #2

Course Description:

This course is designed to provide a review of basic mathematic skills related to dosage calculations, a thorough knowledge of the systems of measurement and conversion, and application skills to perform dosage calculations.

Tasks: Tasks will be reviewed and are available to view at any time at

<http://education.ky.gov/CTE/ctepa/Documents/2016-2017%20Health%20Sciences%20Program%20of%20Studies%20FINAL.pdf>

Course Objectives

Students will:

1. Without the use of a calculator, solve problems involving addition, subtraction, multiplication, division of integers, fractions and decimals
2. Perform conversions with accuracy, interchanging apothecary, metric, and household systems
3. Describe and perform steps in dosage calculations of oral and parenteral medications
4. Describe and perform steps in pediatric dosage calculations
5. Describe and perform concepts of IV therapy calculation

Connections:

- Kentucky Occupational Skill Standards/National Health Care Skill Standards
- HOSA-Future Health Professionals (www.hosa.org)
- Omnibus Budget Reconciliation Act (OBRA) Guidelines
- Secretary's Commission on Achieving Necessary Skills (SCANS)

Materials Used: Mathematics For The Health Sciences, A Comprehensive Approach; Helms, Joel R.

Course Outline

1. [Mathematical Essentials](#)
 - A. [Operations with Integers](#)
 - B. [Fractions](#)
 - C. [Order of Operations](#)
 - D. [Decimals](#)
 - E. [Percents](#)
 - F. [Roman Numerals](#)
2. [Algebra](#)
 - A. [Solving Linear Equations](#)
 - B. [Mixture Problems](#)
 - C. [Solving Rational Equations](#)
 - D. [Formula Manipulation](#)
 - E. [Ratios and Proportions](#)
 - F. [Solving Percent Problems](#)
 - G. [Properties of Exponents](#)

- H. Scientific Notations
 - I. Significant Digits
 - J. Using the Scientific Calculator
3. Measurement
 - A. Basic Dimensional Analysis
 - B. Conversions within the Metric System
 - C. Conversions between Metric and Nonmetric
 - D. Apothecary and Household Systems
 - E. Temperature Conversions
 4. Dilutions, Solutions, and Concentrations
 - A. Dilutions
 - B. Concentrations
 - C. Concentrations and Volumes of Two Solutions
 - D. Percent Solutions
 5. Drug Dosages and Intravenous Calculations
 - A. Reading and Interpreting Drug Orders and Drug Labels
 - B. Dosage Calculations: Formulas, Proportions, and Dimensional Analysis
 - C. Parenteral Dosage Calculations
 - D. Reconstitution of Solutions
 - E. Intravenous Flow Rates
 - F. Titration of Intravenous Medications
 - G. Dosages Based on Weight
 - H. Dosages Based on Body Surface Area
 6. Linear Equations, Graphing, and Variation
 - A. The Coordinate Plane
 - B. Slope and Rate Change
 - C. Graphing Linear Equations Using Slope
 - D. Graphing Linear Equations Using Tables
 - E. Interpreting Linear and Nonlinear Graphs
 - F. Direct and Inverse Variations
 7. Exponential and logarithmic Functions
 - A. Functions and Inequalities
 - B. Exponential Functions
 - C. Applications of Exponential Functions: Growth and Decay
 - D. Logarithms
 - E. Applications of Logarithms
 8. Geometry
 - A. Angles and Lines
 - B. Geometric Figures
 - C. Understanding Area and Volume
 - D. Surface Area
 - E. Density
 9. Charts, Tables, and Graphs
 - A. Collecting Data
 - B. Organizing Data using Frequency Distribution Tables
 - C. Reading and Interpreting Tables and Charts
 - D. Constructing Charts and Graphs from Tables
 10. Introductory Statistics
 - A. Measures of Central Tendency
 - B. Standard Deviation
 - C. Normal Distribution
 - D. z-Score
 - E. Percentiles

Grading Student will be permitted to work at their own pace on textbook assignments and online student activities. However, suitable progress must be made throughout the course. Instructor will be available to answer questions and release exams once student has completed specific unit assignments.

<u>Grading Scale</u>	<u>Grading Criteria</u>
A 100-90	40% Exams
B 89-80	40% Classroom Activities/HW/Employment Portfolio
C 79-70	20% Participation
D 69-60	
F 59-0	

Attendance Policy:

Students must attend all classes. Absenteeism of 10 or more days will require a meeting with the teacher and principal. **Chronic absenteeism will be grounds for removal from the class.**

Other

Fees may be charged for field trips to cover transportation, tickets and/or registration.

Classroom Rules and Expectations:

- **Respect self and others.**
- Be on time!
- ASK 3 THEN ME – will be discussed in class.
- Be prepared for class.
- Remain seated until bell rings.
- Do your best! Always give 100% ~ no less~!
- Clean up your workspace each day.
- Abide by Code of Conduct
- Supplies are on the table at the back of the room.

I have completed the **Safety Orientation** for the Health Science program, and certify that I understand all the safety regulations pertaining to it. This orientation included the physical and chemical dangers (cleaners, paints, thinners, solvents, etc. . .) to which I may be exposed while in this shop/classroom as required by the Hazardous Communication Standard; power tool and equipment safety; and general classroom/shop safety. I also understand that I am now under a DIRECT ORDER not to use ANY tools and/or chemicals until and unless the instructor has given permission. I have also been told that to use such tools and/or chemicals without permission will result in disciplinary action.

I have received training in the following:

- () The location of the Hazardous Chemical list and SDS sheets in my classroom/shop area.
- () How to find and use the corresponding SDS sheets from the hazardous chemical list as part of my safety orientation or in the event of an accident.
- () I have been instructed on the safe and proper use of the items found on the chemical list in my shop/area classroom.
- () I know the location of, and have instruction in the safe use of the required personal protective equipment (PPE) for the items listed on the chemical list as well as any tools/equipment.
- () I have informed my parents about the hazardous communication program, and informed them that the program is available for their scrutiny upon appointment.
- () I have been shown the location of all fire extinguishers in or near the shop and shown how to use each type.
- () I have been instructed on Blood Bourne Pathogens and understand to treat all body fluids as being infectious.
- () I have been instructed on the potential for needle sticks and the protocol associated with the phlebotomy and/or MNA programs for sharps injury.
- () I have been instructed and have performed a walk thru of all exits and emergency routes and protocols.
- () **I have been instructed how to obtain this syllabus from the district web site. (Hard copies are available upon request).**

Parent Signature

Date

Student Signature

Date