COWLEY COLLEGE
& Area Vocational Technical School

COURSE PROCEDURE FOR

HEALTH CARE MATHEMATICS REVIEW
EBM4400 2 Credit Hours

Student Level:
This course is open to students on the college level in either the freshman or sophomore year.

Catalog Description
EBM 4400 - HEALTH CARE MATHEMATICS REVIEW (2 hrs)
A course focusing on the basic math skills required to prepare health care students for entrance exams or other courses requiring calculations.

Prerequisites:
None

Controlling Purpose:
This course will focus on the basic math skills required to prepare health care students for entrance exams or other courses requiring calculations.

Learner Outcomes:
Students completing this course with an A, B, or C should be able to apply basic computational skills including working with whole numbers, fractions, decimals, ratio/proportions, percent's, combined applications, pre-algebra problems, metric system. The student will also be able to solve mathematical problems involving apothecary measurement/conversion, dosage calculations, parenteral dosage, intravenous fluid administration, basic dosage by body weight, and reading drug labels, medicine cups, syringes, and IV fluid administration bags.

Units Outcomes and Criterion Based Evaluation Key for Core Content:
The following defines the minimum core content not including the final examination period. Instructors may add other content as time allows.

Evaluation Key:

A = All major and minor goals have been achieved and the achievement level is considerably above the minimum required for doing more advanced work in the same field.

B = All major goals have been achieved, but the student has failed to achieve some of the less important goals. However, the student has progressed to the point where the goals of work at the next level can be easily achieved.

C = All major goals have been achieved, but many of the minor goals have not been achieved. In this grade range, the minimum level of proficiency represents a person who has achieved the major goals to the minimum amount of preparation necessary for taking more advanced work in the same field, but without any major handicap of inadequacy in his background.

D = A few of the major goals have been achieved, but the student's achievement is so limited that he is not well prepared to work at a more advanced level in the same field.
F = Failing, will be computed in GPA and hours attempted.
N = No instruction or training in this area.

Unit 1 WHOLE NUMBERS Outcomes: The student will review mathematical operations involving whole numbers						
A	B	C	D	F	N	Specific Competencies Demonstrate the ability to:
						Use symbols and number statements.
						Add, subtract, and multiply whole numbers.
						Find the prime factorization of a number.
						Divide whole numbers.
						Round whole numbers.
						Use estimation involving whole numbers.
						Find basic statistics including mean, median, mode, and range.
						Interpret and write roman numerals.
						Write the format that time is used in allied health.

Unit 2 FRACTIONS Outcomes: The student will learn to solve math problems involving fractions including addition, subtract, multiplication, and division						
A	B	C	D	F	N	Specific Competencies Demonstrate the ability to:
						Explain part-to-whole relationships.
						Write equivalent fractions.
						Reducing fractions using the multiplication method and the division method.
						Convert to and from improper fractions.
						Add fractions with like denominators.
						Find the common denominator and add fractions.
						Order fractions.
						Subtract fractions.
						Multiply fractions.
						Multiply mixed numbers.
						Divide fractions.
						Simplify complex fractions.

Unit 3 DECIMALS Outcomes: The student will solve decimal problems involving addition, subtraction, multiplication, division, and change decimals to fractions and fractions to decimals						
A	B	C	D	F	N	Specific Competencies Demonstrate the ability to:
						Round decimals.
						Compare decimals.
						Add, subtract, multiply, and divide decimals.
						Change decimals to fractions.
						Change fractions to decimals.
						Solve temperature conversions with decimals.
						Solve mixed fraction and decimal problems.

Unit 4 RATIO AND PROPORTION Outcomes: The student will learn to solve problems involving ratios and proportions						
A	B	C	D	F	N	Specific Competencies Demonstrate the ability to:
						Solve ratio problems.
						Solve proportion problems.
						Solving proportion problems involving a variable.
						Solve application problems using proportions.
						Solve nutritional applications of proportions.
						Solve problems involving food labels.

Unit 5 PERCENTS Outcomes: The student will learn the solve problems involving percent's						
A	B	C	D	F	N	Specific Competencies Demonstrate the ability to:
						Convert from percent to decimal.
						Convert from decimal to percent.
						Use proportions to solve percent problems.
						Solve problems involving percent strength of solutions.
						Solve problems involving single trade discount.

Unit 6 COMBINED APPLICATIONS Outcomes: The student will solve problems involving a mixture of fractions, decimals, ratios, and percent's						
A	B	C	D	F	N	Specific Competencies Demonstrate the ability to:
						Convert among fractions, decimals, ratios, and percent's.
						Use the order of operations.
						Use combined applications in measurement conversion.
						Explain standard units of measure.

Unit 7 PRE-ALGEBRA BASICS Outcomes: The student will solve problems involving integers, scientific notation, exponents, order of operations, algebraic expressions, formulas, and linear equations						
A	B	C	D	F	N	Specific Competencies Demonstrate the ability to:
						Find the absolute value of an integer.
						Add, subtract, multiply, and divide integers.
						Simplify exponential expressions.
						Write numbers in scientific notation.
						Solve square roots.
						Use order of operations to simplify.
						Explain algebraic expressions and how to write them from word problems.
						Solve linear equations.
						Solve literal equations.

Unit 8 THE METRIC SYSTEM Outcomes: The student will solve problems involving the metric system						
A	B	C	D	F	N	Specific Competencies Demonstrate the ability to:
						Use the metric symbols.
						Change unit measures.

Unit 9 HEALTH RELATED APPLICATIONS Outcomes: The student will solve health related application problems						
A	B	C	D	F	N	Specific Competencies Demonstrate the ability to:
						Read drug labels, medicine cups, syringes, and IV fluid administration bags.
						Use apothecary measurement and conversions.
						Use rounding in dosage calculations.
						Calculate dosages using drug labels.
						Calculate parenteral dosage.
						Perform the computations involved in intravenous fluid administration.
						Calculate basic dosage by body weight.

Projects Required:
None

Textbook:
Contact Bookstore for current textbook.

Materials/Equipment Required:
None

Attendance Policy:
Students should adhere to the attendance policy outlined by the instructor in the course syllabus.

Grading Policy:
The grading policy will be outlined by the instructor in the course syllabus.

Maximum class size:
Based on classroom occupancy

Course Timeframe:
The U.S. Department of Education, Higher Learning Commission and the Kansas Board of Regents define credit hour and have specific regulations that the college must follow when developing, teaching and assessing the educational aspects of the college. A credit hour is an amount of work represented in intended learning outcomes and verified by evidence of student achievement that is an institutionally-established equivalency that reasonably approximates not less than one hour of classroom or direct faculty instruction and a minimum of two hours of out-of-class student work for approximately fifteen weeks for one semester hour of credit or an equivalent amount of work over a different amount of time. The number of semester hours of credit allowed for each distance education or blended hybrid courses shall be assigned by the college based on the amount of time needed to achieve the same course outcomes in a purely face-to-face format.

Refer to the following policies:

402.00 Academic Code of Conduct
263.00 Student Appeal of Course Grades
403.00 Student Code of Conduct

Disability Services Program:
Cowley College, in recognition of state and federal laws, will accommodate a student with a documented disability. If a student has a disability, which may impact work in this class which requires accommodations, contact the Disability Services Coordinator.