

MATH-91: APPLIED MATH FOR HEALTH PROFESSIONALS

Justification for this inactivation request

This course is no longer able to be offered due to AB705 and AB1705 legislation.

Effective Term

Fall 2025

CC Approval

09/20/2024

AS Approval

10/24/2024

BOT Approval

11/21/2024

COCI Approval

03/13/2025

SECTION A - Course Data Elements

CB04 Credit Status

Credit - Degree Applicable

Discipline

Minimum Qualifications	And/Or
Mathematics (Master's Degree)	

Subject Code

MATH - Mathematics

Course Number

91

Department

Mathematics

Division

Mathematics (MATH)

Full Course Title

Applied Math for Health Professionals

Short Title

App Math Health Professionals

CB03 TOP Code

1702.00 - Mathematics Skills

CB08 Basic Skills Status

NBS - Not Basic Skills

CB09 SAM Code

E - Non-Occupational

SECTION B - Course Description

Catalog Course Description

This class is for students in the health professions who need review of math concepts such as ratios, fractions and measurements of the metric system. The topics covered specifically apply to health occupations.

SECTION C - Conditions on Enrollment

Open Entry/Open Exit

No

Repeatability

Not Repeatable

Grading Options

Letter Grade or Pass/No Pass

Allow Audit

Yes

Requisites

SECTION D - Course Standards

Is this course variable unit?

No

Units

3.00

Lecture Hours

54.00

Outside of Class Hours

108

Total Contact Hours

54

Total Student Hours

162

Distance Education Approval

Is this course offered through Distance Education?

Yes

Online Delivery Methods

DE Modalities	Permanent or Emergency Only?
Entirely Online	Permanent
Hybrid	Permanent
Online with Proctored Exams	Permanent

SECTION E - Course Content

Student Learning Outcomes

Upon satisfactory completion of the course, students will be able to:	
1.	Perform arithmetic operations on numbers by hand.
2.	Calculate drug dosages with dimensional analysis.
3.	Compute conversions between systems

Course Objectives

Upon satisfactory completion of the course, students will be able to:	
1.	Perform arithmetic operations with fractions, decimals, percents, ratios and proportions.
2.	Apply an understanding of the metric, household and apothecary measurements to calculate doses.

3. Apply dimensional analysis to calculate weights, lengths, intake and output.
4. Calculate oral, parenteral, and pediatric dosages by applying dimensional analysis.

Course Content

1. Mathematics Skills
 - a. Add, subtract, multiply, simplify and divide mixed numbers
 - b. Add, subtract, multiply, simplify and divide fractions
 - c. Convert between mixed numbers and fractions
 - d. Reduce complex fractions
 - e. Add, subtract, multiply, divide and round decimals
 - f. Read and write decimal numbers
 - g. Multiply and divide decimals by a factor of 10
 - h. Compare fractions and decimals
 - i. Convert between fractions, decimals and percents
 - j. Calculate percentages
2. Units and Measurements
 - a. Use the metric measures of weight, volume and length
 - b. Compute equivalents between the metric and household systems of measure by using dimensional analysis
 - c. Convert equivalent apothecary & metric measures
 - d. Calculate intake & output, weight and lengths
 - e. Convert between Fahrenheit and Celsius
 - f. Convert between a 24 hour clock and AM/PM
3. Calculation of Drug Dosages
 - a. Use the dimensional analysis method to solve problems of oral dosages involving tablets, capsules, liquid medications and those measured in milliequivalents
 - b. Use the dimensional analysis method to solve parenteral dosage problems
 - c. Convert all measures to one system of measurement
 - d. Solve problems involving drugs measure in unit dosages
 - e. Calculate drug dosage for the reconstitution of a powdered drug into a liquid form
4. Pediatric and Dosages
 - a. Convert between pounds and kilograms
 - b. Convert between grams and kilograms
 - c. Calculate pediatric dosages either the single or individual dose
 - d. Calculate a safe and therapeutic 24 hour dose range
 - e. Calculate the single-dose range from a 24-hour dosage range
 - f. Calculate the daily fluid requirements for infants and young children
 - g. Calculate the body surface area (BSA) for medication administration

Methods of Instruction

Methods of Instruction

Types	Examples of learning activities
Activity	Group or individual worksheets
Discussion	Whole classroom discussion regarding strategies for solving problems
Individualized Instruction	
Lecture	Problem demonstration and/or multimedia presentations
Observation and Demonstration	Student presentations

Online Adaptation

Types	Examples of learning activities
Activity	
Directed Study	
Directed Study	
Group Work	
Individualized Instruction	

Journal

Lecture

Instructor-Initiated Online Contact Types

Announcements/Bulletin Boards

Chat Rooms

Discussion Boards

E-mail Communication

Telephone Conversations

Video or Teleconferencing

Student-Initiated Online Contact Types

Chat Rooms

Discussions

Group Work

Course design is accessible

Yes

Methods of Evaluation**Methods of Evaluation**

Types	Examples of classroom assessments
Exams/Tests	Chapter tests covering course content and comprehensive exams. Final Exam - Exam composed of problems covering course topics. Mid Term - Exam(s) covering course topics.
Quizzes	Periodic quizzes on course material
Oral Presentations	Students may be asked to solve problems on the board.
Homework	Reading from textbook sections and completing problems at end.
Other	The Mathematics Department maintains a commitment to diverse teaching methods in courses emphasizing vital quantitative skills and qualitative reasoning ability (PEP Program Mission Statement, 2011). To that end, it is expected that sufficient formative assessments will be given to students that in frequency, length and rigor adequately assess both quantitative skills and qualitative reasoning.

Assignments**Reading Assignments**

Read sections from the textbook, for example:

1. Read the section in Chapter 2 about Multiplying and dividing decimals by 10 or a power of 10. Be ready to solve problems in class.
2. In chapter 11, read the section titled "Oral Dosages Involving Capsules and Tablets: Dimensional Analysis Method." Be ready to discuss the section in class and work on problems in class.

Writing Assignments

Writing Assignments from the textbook Students will solve problems from the workbook for the class.

1. Complete the Chapter 2 decimal pretest to prepare to start Chapter 2 decimals in class.
2. Complete 1-10 on the Chapter 12 Parenteral Dosages worksheet and bring to class for discussion.

SECTION F - Textbooks and Instructional Materials**Material Type**

Textbook

Author

Ogden, S.J., Fluharty, L.

Title

Calculation of Drug Dosages

Edition/Version

11th

Publisher

Elsevier

Year

2020

Material Type

Textbook

Author

Morris, D. G.

Title

Calculate with Confidence

Edition/Version

7th

Publisher

Elsevier

Year

2018

Material Type

Other required materials/supplies

Description

Software #1:

Title: Elsevier Adaptive Quizzing for Calculation of Drug Dosages

Publisher: Elsevier

Edition: 11th

SECTION G - Diversity, Equity and Inclusivity**Course Codes (Admin Only)****CB00 State ID**

CCC000615980

CB10 Cooperative Work Experience Status

N - Is Not Part of a Cooperative Work Experience Education Program

CB11 Course Classification Status

Y - Credit Course

CB13 Special Class Status

N - The Course is Not an Approved Special Class

CB23 Funding Agency Category

Y - Not Applicable (Funding Not Used)

CB24 Program Course Status

Not Program Applicable

Allow Pass/No Pass

Yes

Only Pass/No Pass

No