

Quinsigamond Community College School of Math and Science

Instructor's Information:

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Course Information:

Course: MAT 098 Math for Allied Health – Section ##
Meets on: <Mondays, Wednesdays, Fridays from 8:00am – 8:50am>
Credits: 3 credit hours

Course Description:

The course focuses on practical and useful applications of mathematics for students intending to enter the health science fields. Students examine mathematical topics as they relate to health applications. Topics include: basic arithmetic computations in health applications; review of algebra; systems of measurement; medication labels, prescriptions, and syringe calculations; modeling health applications with ratios and proportions; dosage calculations; and basics of statistics.

Please Note: This developmental mathematics course cannot be used to satisfy degree or certificate requirements. This course is designed to meet an admission requirement for students who are planning to enter a health career program. It will not be considered equivalent to MAT 099.

Pre-requisite:

MAT 095 with a grade of “C” or higher; or appropriate placement score

Required Textbook/Materials/Website:

Textbook: *Math Skills for Allied Health Careers*, Daniel Timmons, Pearson, © 2008.
Materials: Scientific calculator
Website: Access to www.mymathlab.com

Student Learning Outcomes & Instructional Objectives:

This course is designed to achieve the following student outcomes and objectives:

- Review arithmetic operations of fractions, decimals and percents.
- Perform conversions among fractions, decimals and percents.
- Review operations on signed numbers and order of operations.
- Examine the procedure for solving linear equations.
- Review the concepts of ratios and proportions.
- Solve percentage problems.
- Use formulas to solve for unknown variables.
- Apply math modeling to medical applications.
- Review measurement fundamentals.

- Examine the definition, operations and conversions of numbers in scientific notation.
- Explore the concepts of significant digits and rounding.
- Study the various systems of measurement including the metric and SI systems, household measurement units and the Apothecary system.
- Investigate procedures for conversions between measurement systems.
- Read and understand medication labels and inserts.
- Summarize abbreviations used on prescriptions and medical orders.
- Read and interpret prescriptions and medical orders.
- Perform syringe calculations.
- Apply ratio and proportion concepts in dosage calculations.
- Understand and perform multi-step dosage calculations using ratios, proportions, formulas and dimensional analysis.
- Use ratios and proportions in X-ray applications.
- Use ratios and proportions in applications related to Respiratory Care.
- Apply angle measurements to Physical Therapy problems.
- Look at an introduction to IV fluids.
- Calculate IV flow rates.
- Examine calculations of infusion times.
- Look at an introduction to statistical concepts.
- Construct and interpret statistical graphs.
- Compute and analyze the measures of central tendency.
- Compute and analyze the measures of variation.
- Learn the definition and applications of the normal distribution
- Go over an introduction to logarithms and antilogarithms
- Calculate common logarithms of numbers using the definition and using a calculator.
- Find the antilogarithm of a number using the definition and using a calculator.

Teaching Procedures:

Most classes will be a combination of lecture, group activities, and in-class assignments. You will be given homework assignments to be completed outside of class, with due dates/times. There will occasionally be a quiz or exam given in class.

Course Topics & Required Assignments/Readings:

Basic Arithmetic Computations in Health Applications

- Introduction to Math as Used in Allied Health Fields
- A Review of Operations with Fractions
- A Review of Operations with Decimals
- A Review of Operations with Percents
- Conversions Among Fractions, Decimals, and Percents

A Review of Algebra

- Signed Numbers and the Order of Operations
- A Review of Solving Linear Equations
- A Review of Ratios and Proportions

- Solving Percentage Problems
- Using Formulas
- Modeling Medical Applications

Systems of Measurement

- Measurement Fundamentals
- Scientific Notation
- Significant Digits and Rounding
- The Metric and SI Systems
- Household Measurement Units
- The Apothecary System
- Converting Between Measurement Systems
- Temperature Scales

Medication Labels, Prescriptions, and Syringe Calculations

- Reading Medication Labels and Inserts
- Abbreviations Used on Prescriptions and Medical Orders
- Reading and Interpreting Prescriptions and Medical Orders
- Syringe Calculations

Modeling Health Applications with Ratios and Proportions

- Introduction
- Ratios and Proportions in Dosage Calculations
- Ratios, Proportions, Formulas, and Dimensional Analysis in Multi-step Dosage Calculations
- Ratios and Proportions in X-ray Applications
- Ratios and Proportions Related to Respiratory Care
- Ratios and Proportions in Preparation of Solutions
- Angle Measurements and Physical Therapy

Calculations for Basic IV Therapy

- Introduction to IV Fluids
- IV Flow Rate Calculations
- Calculations of Infusion Times

The Basics of Statistics

- Introduction to Statistics
- Constructing and Interpreting Graphs
- Measures of Central Tendency
- Understanding Range, Standard Deviation and the Coefficient of Variation
- The Normal distribution and Control Charts

Logarithms, ionic solutions, and pH (if time allows)

- An Introduction to Logarithms and Antilogarithms
- Ionic Solutions
- Using Logarithms to Calculate pH and pOH

Assignment & Test Schedule:

<list all assignments, quizzes, & exam dates>

Grading Breakdown:

- <25% Homework >
- <15% Quizzes>
- <10% Attendance>
- <20% Exams>
- <30% Final Exam>

A	95 – 100	B –	80 – 82	D +	67 – 69
A –	90 – 94	C +	77 – 79	D	63 – 66
B +	87 – 89	C	73 – 76	D –	60 – 62
B	83 – 86	C –	70 – 72	F	0 – 59

Attendance Policy:

Students are expected to attend all classes, for the entire period. Attendance will be taken during every class, and counts towards your final course grade. If you are absent from class, a doctor's note will excuse your absence.

Disability Statement:

If you have a disability which may require an accommodation, please notify me as soon as possible. You are responsible for forwarding your Accommodation Letter to me and discussing arrangements for this course. Your accommodations for this course begin upon my receipt of your Accommodation Letter; accommodations are not retroactive. You may request accommodations at any time during the semester, but instructors must be provided with reasonable notice prior to exams or deadlines.

Disability Services works to promote access to ensure an accessible college experience for students. If you have further questions, contact Disability Services. All discussions are confidential.

Contact Information for Disability Services & Assistive Technology:

Call: 508-854-4471
Sorenson Video Phone: 508-502-7647
Email: disabilityservices@qcc.mass.edu

Services for Veterans:

If you are a veteran of the armed forces, please visit the Veteran Affairs Office located in 258A (Administration Building) or contact them at veteranaffairs@qcc.mass.edu

Academic Honesty and Plagiarism:

Our purpose in the classroom is to seek the truth; this work requires trust and honesty between teacher and student. If we are not honest about what we know and don't know, our learning will always be impaired. Because our teaching and learning depends on this honest communication, we expect all students to understand what plagiarism is and why it is unacceptable.

Plagiarism means taking someone else's ideas or words and presenting them as one's own. The offense can take many forms including cheating on a test, passing in a paper taken from the Internet or from another student, or failing to properly use and credit sources in an essay.

Sometimes the issue is subtle, involving getting too much help on an assignment from someone else. In every instance, plagiarism means cheating both oneself and the owner of the source. Since the cheating sabotages a student's learning experience, consequences range from no credit for the assignment to failure for the course and possible expulsion from the college.

For further information concerning plagiarism, refer to the QCC Student Handbook.