



CAMOSUN COLLEGE
School of Access
Academic and Career Foundations Department
MATH 039 Basic Math for Health Care
COURSE OUTLINE

The Approved Course Description is available on the College website http://camosun.ca/learn/programs/academic-upgrading/what-youll-learn/upgrading.html#tabs-fundamental_a

1. Instructor Information

Instructor: Alison Bowe
Office: CBA 150

Phone: 370-4911 **Text:** 250.881.0264
e-mail: bowe@camosun.ca

May- August 2017 Schedule

| Time | Monday | Tuesday | Wednesday | Thursday | Friday |
|-------------|--------------------------------------|------------------------|--------------------------------------|------------------------|--------------------------------------|
| 8:30-10:30 | Help Centre 10:00-10:30 | Math S01 CBA 117 | Help Centre 9:30-10:30 CBA 109 | Math S01 CBA 117 | Help Centre 10:00-10:30 |
| 10:30-11:30 | Math S02 CBA 117 | | Math S02 CBA 117 | | Math S02 CBA 117 |
| 11:30-12:30 | | | | | |
| 12:30-3:20 | 1:30-4:30 Office Hours CBA 150 | Math S03 CBA 117 | 1:30-4:30 Office Hours CBA 150 | Math S03 CBA 117 | 1:30-4:30 Office Hours CBA 150 |
| 3:30-4:30 | | | | | |

2. Intended Learning Outcomes

(complete ABE Intermediate Mathematics learning outcomes at ABE Articulation Handbook website http://www2.gov.bc.ca/assets/gov/education/post-secondary-education/adult-education/2016-17_abe_guide.pdf)

At the end of the course, students will be able to:

1. use mathematics at an ABE Fundamental level with competence
2. demonstrate knowledge and skills in using the principles and operations of basic arithmetic
3. apply a variety of strategies in solving math-related problems
4. apply knowledge and skills in basic arithmetic to solve problems related to the Health Care professions.

3. Required Materials

- (a) textbook: *Math Basics for the Healthcare Professional*, 4th Ed, by Michele Benjamin-Lesmeister
- (b) calculator (scientific calculator recommended: Sharp EL531W used for MATH 053)

Suggested Supplementary Resources (optional/if needed)

- (a) *Maths for Healthcare Professionals* for download at:
http://www2.hull.ac.uk/lii/PDF/nursing_leaflets_combined.pdf
- (b) Math videos:
 - (i) "Math Antics" <https://www.youtube.com/user/mathantics>: excellent explanation of basic math concepts and skills
 - (ii) UFV site collection of additional math resources (refer to Math 052, 053 & 062)
<http://www.ufv.ca/uup/academic-resources/>
 - (iii) "Khan Academy" videos – simply search relevant math topics on [Youtube](#)
Eg., For videos about Unit 2 on your Course Outline: Search "**Khan Academy fractions**"
- (c) Math 023-026 materials

4. Course Content and Schedule

Self-paced Instructions

The course completion time will vary for each student, depending on a number of factors, including your current level of math skills, motivation, learning rate, and how much time you have to study math, either at the college or at home.

For each unit of your Math 039 text listed in the table below,

- a. **Skip the Pre-Test** at the beginning of the text, as well as at the beginning of each Unit/Chapter
- b. **Read** the **Student Learning Outcomes**, the **Overview**, and **Review** sections for each math topic and study the **Examples**
- c. **Do** the **odd numbered questions only** (#1, 3, 5, etc.) in each of the **Practices**
- d. **Check** your answers in the back of the book (**Appendix C**); you can also record them in the "Score" column of your Course Outline below, if you wish
- e. (Optional) For **additional review**, if needed, do:
 - o post-tests and a pre-tests (answers at the back of the book)
 - o a unit review at the end of the chapter
 - o practice tests for all 13 units (Appendix B)
- f. Ask for each **Module Test** when ready

Help Centres: Please also note that your course includes 4 additional hours of lab time over and above the 6 hours per week class time. Please feel free to utilize the Help Centres for extra help with your course, as this is their purpose.

| MATH 039 course content Text: <i>Math Basics for the Healthcare Professional</i> | | Score |
|---|--|-------|
| MODULE 1 | ARITHMETIC OPERATIONS (no calculator) | |
| | | |
| Page | Unit 1 – Whole Number Review | |
| 6 | Addition | |
| 8 | Subtraction | |
| 9 | Multiplication | |
| 11 | Prime Factorization | |
| 12 | Division: <i>Practice</i> | |
| 15 | Solving for the Unknown Number | |
| 16 | Rounding | |
| 17 | Estimation | |
| 18 | Statistical Analysis | |
| 25 | Roman Numerals | |
| 26 | Time in Allied Health | |
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| Page | Unit 2 – Fractions | |
| 33 | Part-to-whole Relationships | |
| 34 | Equivalent fractions | |
| 35 | Reducing to Lowest or Simplest Terms | |
| 38 | Improper Fractions | |
| 39 | Adding Fractions with Like Denominators | |
| 41 | Finding the Common Denominator | |
| 43 | Difficult Common Denominators | |
| 46 | Ordering Fractions | |
| 46 | Subtraction of Fractions | |
| 51 | Multiplication of Fractions | |
| 55 | Multiplication of Mixed Numbers | |
| 58 | Division of Fractions | |
| 61 | Converting Temperatures Using Fraction Formulas | |
| 63 | Complex Fractions | |
| 66 | Measurement in Fractions | |
| | | |
| Page | Unit 3 – Decimals | |
| 75 | Decimals | |
| 78 | Rounding Decimals | |
| 79 | Comparing Decimals | |
| 82 | Addition of Decimals | |
| 83 | Subtraction of Decimals | |
| 84 | Multiplication of Decimals | |
| 87 | Division of Decimals | |
| 89 | Simplified Multiplication and Division of Decimals | |
| 92 | Changing Decimals to Fractions | |
| 94 | Changing Fractions to Decimals | |
| 96 | Temperature Conversions with Decimals | |
| 97 | Solving Mixed Fraction and Decimal Problems | |
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| TEST | Module 1 Test - Arithmetic Operations (Units 1-3) (no calculator) | |
| | (75% minimum) | |
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| MATH 039 Course Content Text: Math Basics for the Health Care Professional | | Score |
|---|--|--------------|
| MODULE 2 | RATIO, PERCENT & MEASUREMENT (calculator allowed) | |
| Page | Unit 4 – Ratio & Proportion | |
| 105 | Ratio | |
| 109 | Proportion | |
| 110 | Solving for “x” | |
| 115 | Word Problems Using Proportions | |
| 117 | Solving for “x” in More Complex Problems | |
| 119 | Nutritional Application of Proportions | |
| 120 | Practice with Food Labels | |
| Page | Unit 5 – Percent | |
| 129 | Percent-to-Decimal Conversion | |
| 130 | Decimal-to-Percent Conversion | |
| 131 | Using Proportion to Solve Percent Problems | |
| 136 | Percent Change | |
| 137 | Percent Strength of Solutions | |
| 141 | Single Trade Discount | |

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|-----------------|--|--|
| Page | Unit 6 – Combined Applications | |
| 148 | Conversions Among Fractions, Decimals, Ratios & Percent | |
| 152 | Using Combined Applications in Measurement Conversion | |
| 153 | Standard Units of Measure | |
| Page | Unit 8 – The Metric System | |
| 188 | Using the Metric Symbols | |
| 190 | Changing Unit Measures | |
| TEST | Module 2 Test – Ratio, Percent & Measurement (Units 4, 5, 6 & 8) (75% minimum) | |
| MODULE 3 | DRUG LABELS, CONVERSIONS AND DOSAGE | |
| Page | Unit 9 - Reading Drug Labels, Medicine Cups, Syringes & IV Bags | |
| 204 | Drug Labels | |
| 209 | Medicine Cups | |
| 210 | Syringes | |
| 211 | IV Bags | |
| Page | Unit 10 - Apothecary Measurement & Conversion | |
| 219 | Apothecary Measurement & Conversions | |
| 229 | Rounding in Dosage Calculations | |
| Page | Unit 11 - Dosage Calculations | |
| 237 | Performing Dosage Calculations | |
| TEST | Module 3 Test – Drug Labels, Conversions & Dosage (Units 9-11) (75% minimum) | |
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| MATH 039 Course Content Text: <i>Math Basics for the Health Care Professional</i> | | Score |
|--|--|-------|
| MODULE 4 | TYPES OF DOSAGE CALCULATIONS | |
| Page | Unit 12 - Parenteral Dosage | |
| 255 | Injections | |
| Page | Unit 13 – Basics of Intravenous Fluid Administration | |
| 270 | Calculating IV Infusion Rates | |
| 273 | Modified Setup | |
| 275 | Infusion Duration | |
| 277 | Calculating Total Volume | |
| Page | Unit 14 – Basic Dosage by Body Weight | |
| 284 | Conversion to Kilograms | |
| 286 | Calculating Dosage | |
| TEST | Module 4 – Types of Dosage Calculations (Units 12-14) | |
| | (75% minimum) | |
| Review | Math 039 Review: <i>Comprehensive Post-test (Appendix A on P. 293)</i> | |
| FINAL | Final Exam | |

5. Basis of Student Assessment (Weighting)

- (a) **Tests** 75% of the course grade is based on the average of **all** test scores for modules 1–4 (including both passing and failing test scores)
- (b) **Exams** 25% of the course grade is based on the average of **all** final exam scores (including both passing and failing exam scores)

Note: Students with a record of poor attendance OR poor progress may be restricted from re-registering in Academic and Career Foundations Department courses.

6. Grading System

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|----|---------|----|--------|----|-------------|
| A+ | 90–100% | B+ | 77–79% | C+ | 65–69% |
| A | 85–89% | B | 73–76% | C | 60–64% |
| A– | 80–84% | B– | 70–72% | IP | in progress |

7. Learning Support and Services for Students

ACADEMIC UPGRADING HELP CENTRE (CBA 109 or Ewing 342)

<http://camosun.ca/services/help-centres/math.html>

Help with coursework, reference & learning materials library,
computers & printer, quiet testing & study areas

There are many other Camosun services available to help you succeed in and out of the classroom, including education planning, learning and personal support, campus life, work and housing, and getting around. This information is available at Registration or the College web site <http://camosun.ca/services/>

8. College Policies

ACADEMIC PROGRESS

The purpose of this policy is to enhance a learner's likelihood of success, and to encourage the learner to use College resources effectively.

<http://camosun.ca/about/policies/education-academic/e-1-programming-and-instruction/e-1.1.pdf>

GRADING

The purpose of this policy is to ensure that grading and promotion are consistent and fair. <http://camosun.ca/learn/calendar/current/procedures.html>

STUDENT CONDUCT

The purpose of this policy is to provide clear expectations of appropriate academic and non-academic student conduct, and to establish processes for resolution of conduct issues or the imposition of sanctions for inappropriate conduct.

<http://camosun.ca/about/policies/education-academic/e-2-student-services-and-support/e-2.5.pdf>