



**CAMOSUN COLLEGE**  
**School of Access**  
**Academic and Career Foundations Department**

**MATH 039 Basic Math for Health Care**

**COURSE OUTLINE**

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*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](http://camosun.ca/learn/programs/academic-upgrading/what-youll-learn/upgrading.html#tabs-fundamental_a)

Ω Please note: This outline will not be kept indefinitely. It is recommended students keep this outline for their records.

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**1. Instructor Information**

**Instructor:** Pam Johnson

**Phone:** 370-3850

**Office:** CBA 148

**e-mail:** [johnsonp@camosun.bc.ca](mailto:johnsonp@camosun.bc.ca)

**2. Intended Learning Outcomes**

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*, 4<sup>th</sup> Ed, by Michele Benjamin-Lesmeister
- (b) calculator (scientific calculator recommended: Sharp EL531W used for MATH 053)

## Suggested Supplementary Resources (optional/if needed)

- (a) 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 (i.e.) For videos about Unit 2 on your Course Outline: Search "**Khan Academy fractions**"
- (b) 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
<b>MODULE 1</b>	<b>ARITHMETIC OPERATIONS (no calculator)</b>	
<b>Page</b>	<b>Unit 1 – Whole Number Review</b>	
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	

<b>MATH 039 Course Content</b>		<b>Score</b>
<b>Text: <i>Math Basics for the Health Care Professional</i></b>		
<b>Page</b>	<b><i>Unit 2 – Fractions</i></b>	
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	
<b>Page</b>	<b><i>Unit 3 – Decimals</i></b>	
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	
<b>TEST</b>	<b><i>Module 1 Test - Arithmetic Operations (Units 1-3) (no calculator)</i></b>	
	(75% minimum)	
<b>MODULE 2</b>	<b><i>RATIO, PERCENT &amp; MEASUREMENT (calculator allowed)</i></b>	
<b>Page</b>	<b><i>Unit 4 – Ratio &amp; Proportion</i></b>	
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	
<b>Page</b>	<b><i>Unit 5 – Percent</i></b>	
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	

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

The MATH 023 course grade is based on the average of all unit Final Test passing 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

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)

<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 Supports, Services and Policies



### Immediate, Urgent, or Emergency Support

If you or someone you know requires immediate, urgent, or emergency support (e.g. illness, injury, thoughts of suicide, sexual assault, etc.), **SEEK HELP**. Resource contacts @ <http://camosun.ca/about/mental-health/emergency.html> or <http://camosun.ca/services/sexual-violence/get-support.html#urgent>

### College Services

Camosun offers a variety of health and academic support services, including counselling, dental, disability resource centre, help centre, learning skills, sexual violence support & education, library, and writing centre. For more information on each of these services, visit the **STUDENT SERVICES** link on the College website at <http://camosun.ca/>

### College Policies

Camosun strives to provide clear, transparent, and easily accessible policies that exemplify the college's commitment to life-changing learning. It is the student's responsibility to become familiar with the content of College policies. Policies are available on the College website at <http://camosun.ca/about/policies/>. Education and academic policies include, but are not limited to, Academic Progress, Admission, Course Withdrawals, Standards for Awarding Credentials, Involuntary Health and Safety Leave of Absence, Prior Learning Assessment, Medical/Compassionate Withdrawal, Sexual Violence and Misconduct, Student Ancillary Fees, Student Appeals, Student Conduct, and Student Penalties and Fines.

### A. GRADING SYSTEMS <http://www.camosun.bc.ca/policies/policies.php>

The following two grading systems are used at Camosun College:

**1. Standard Grading System (GPA)**

Percentage	Grade	Description	Grade Point Equivalency
90-100	A+		9
85-89	A		8
80-84	A-		7
77-79	B+		6
73-76	B		5
70-72	B-		4
65-69	C+		3
60-64	C		2
50-59	D		1
0-49	F	Minimum level has not been achieved.	0

**2. Competency Based Grading System (Non GPA)**

This grading system is based on satisfactory acquisition of defined skills or successful completion of the course learning outcomes

Grade	Description
COM	The student has met the goals, criteria, or competencies established for this course, practicum or field placement.
DST	The student has met and exceeded, above and beyond expectation, the goals, criteria, or competencies established for this course, practicum or field placement.
NC	The student has not met the goals, criteria or competencies established for this course, practicum or field placement.

**B. Temporary Grades**

Temporary grades are assigned for specific circumstances and will convert to a final grade according to the grading scheme being used in the course. See Grading Policy at <http://www.camosun.bc.ca/policies/E-1.5.pdf> for information on conversion to final grades, and for additional information on student record and transcript notations.

Temporary Grade	Description
I	<i>Incomplete:</i> A temporary grade assigned when the requirements of a course have not yet been completed due to hardship or extenuating circumstances, such as illness or death in the family.
IP	<i>In progress:</i> A temporary grade assigned for courses that are designed to have an anticipated enrollment that extends beyond one term. No more than two IP grades will be assigned for the same course.
CW	<i>Compulsory Withdrawal:</i> A temporary grade assigned by a Dean when an instructor, after documenting the prescriptive strategies applied and consulting with peers, deems that a student is unsafe to self or others and must be removed from the lab, practicum, worksite, or field placement.