CAMOSUN COLLEGE	**School of Access** **Department of Mathematics & Statistics** **MATH 137 001** **Algebra and Triangle Trigonometry** **Summer 2018**

COURSE OUTLINE

The course description is online @ http://camosun.ca/learn/calendar/current/web/math.html

⌖ *Please note: the College electronically stores this outline for five (5) years only.*
*It is **strongly recommended** you keep a copy of this outline with your academic records.*
You will need this outline for any future application/s for transfer credit/s to other colleges/universities.

1. Instructor Information

(a)	Instructor:	Crystal Lomas		
(b)	Office Hours:	Tues & Thurs 4:30-5:20 pm		
(c)	Location:	Ewing 270		
(d)	Phone:	250-370-3428	Alternative Phone:	
(e)	Email:	LomasC@camosun.bc.ca		
(f)	Website:	D2L: http://online.camosun.ca MyLab Math: http://pearsonmylabandmastering.com		

2. Intended Learning Outcomes

Successful completion of Math 137 awards 5 credits.

Upon completion of this course the student will be able to:

1. Demonstrate basic numeracy by performing arithmetic with and without a calculator.
2. Read and write mathematics at a level sufficient for further studies in mathematics.
3. Demonstrate an understanding of intermediate algebra and triangle trigonometry.

- Identify integers, rational numbers, irrational numbers, and real numbers.
- Recognize the commutative, associative, and distributive properties of real numbers and use the properties to evaluate and simplify expressions.
- Express real numbers in scientific notation.
- Simplify Expressions with integer exponents.
- Solve linear equations
- Solve equations involving absolute value.
- Solve formulas for a given variable.
- Solve linear and compound inequalities and express answers in both set and interval notation.
- Solve applied problems using a single variable.
- Determine whether or not relations are functions.
- Evaluate functions.
- Graph functions including reciprocal and absolute value functions using a table of values.
- Find the domain and range of functions from their graphs.
- Interpret mathematical statements involving function notation.
- Graph linear equations using a variety of strategies.
- Determine equations of lines given a graph or two points or a slope and a point.
- Model problems using linear equations.
- Solve systems of linear equations in two variables by graphing, substitution, and elimination.
- Solve applied problems using two variables.
- Classify polynomials by degree and type.
- Add subtract, multiply, and divide polynomials.
- Factor polynomials completely using a variety of strategies.
- Solve polynomial equations and word problems involving polynomial equations.
- Perform mathematical operations on rational expressions.
- Simplify complex fractions.
- Solve rational equations and word problems involving rational equations.
- Using laws of exponents, simplify expressions containing rational exponents.
- Convert expressions between radical and exponential form.
- Perform mathematical operations on roots involving variables and solve radical equations.
- State the definition of a complex number and perform mathematical operations on complex numbers.
- Solve quadratic equations using a variety of techniques: factoring, applying the square root principle, completing the square, and using the quadratic formula.
- Solve applied problems involving quadratic equations.
- Analyze a quadratic function by finding its vertex, intercepts, axis of symmetry, and maximum or minimum value.
- Solve optimization problems involving quadratic functions.
- State the right triangle definitions for the six trigonometric functions.
- Solve right triangles and practical problems involving right triangles.
- Calculate the exact trigonometric values for special angles.
- State the coordinate definitions for the six trigonometric functions.
- For an angle in standard position, find the reference angle and construct the reference triangle.
- Without a calculator, evaluate trigonometric functions of multiples of special angles.
- Solve basic trigonometric equations using a scientific calculator.
- Use the line of Sines and Law of Cosines to solve oblique triangles and practical problems involving these triangles.

A grade of C or better is needed for Math 139, 142, 143, or 109. A grade of C+ or better is needed for Math 107 or 155. A grade of B or better is needed for Math 115. After completion of Math 137, students will meet the outcomes as identified in the 2016-2017 Adult Basic Education Articulation Handbook found at https://www2.gov.bc.ca/gov/content/education-training/adult-education/adult-upgrading.

3. Required Materials

(a) Textbook: *Intermediate Algebra* 12th edition by M.L. Bittinger, with digital access code for MyMathLab. If you do not want a print text, then you can purchase the standalone digital code since it grants access to the digital textbook and student solutions manual. The CourseID you'll need for this is **lomas99305**.

(b) Calculator: The *Sharp EL-531* is required for this course.

4. Course Content and Schedule

Section	Topic	Day	Test
Chapter R	**Review of Basic Algebra**		
R.1	Set of Real Numbers	May 7	**Test 1: R.1-1.6d** **Tuesday, May 22** Pre-test Review: May 17 Post-test Review: May 23
R.2	Operations with Real Numbers	May 8	
R.3	Exponential Notation and Order of Operations	May 8	
R.4	Introduction to Algebraic Expressions	May 9	
R.5	Equivalent Algebraic Expressions	May 9	
R.6	Simplifying Algebraic Expressions	May 9, 10	
R.7	Properties of Exponents and Scientific Notation	May 10	
Chapter 1	**Solving Linear Equations and Inequalities**		
1.1	Solving Equations	May 14	
1.2	Formulas and Applications	May 14	
1.3	Applications and Problem Solving	May 15	
1.4	Sets, Inequalities, and Interval Notation	May 15	
1.5	Intersections, Unions, and Compound Inequalities	May 16	
1.6a-d	Absolute-Value Equations	May 16	
Chapter 2	**Graphs, Functions, and Applications**		**Test 2: 2.1-3.7b** **Thursday, June 7** Pre-test Review: June 6 Post-test Review: June 11
2.1	Graphs of Equations	May 23	
2.2	Functions and Graphs	May 24	
2.3	Finding Domain and Range	May 24	
2.4	Linear Functions: Graphs and Slope	May 28	
2.5	More on Graphing Linear Equations	May 28, 29	
2.6	Finding Equations of Lines; Applications	May 29, 30	
Chapter 3	**Systems of Equations**		
3.1	Systems of Equations in Two Variables	May 30	
3.2	Solving by Substitution	May 31	
3.3	Solving by Elimination	May 31, June 4	
3.4a	Solving Applied Problems	June 4, 5	
3.7ab	Systems of Inequalities in Two Variables	June 5, 6	
Chapter 4	**Polynomials and Polynomial Functions**		**Test 3: 4.1-5.4** **Tuesday, June 26** Pre-test Review: June 25 Post-test Review: June 27
4.1	Introduction to Polynomials and Polynomial Functions	June 11	
4.2	Multiplication of Polynomials	June 11	
4.3	Introduction to Factoring	June 12	
4.4	Factoring Trinomials: $x^2 + bx + c$	June 12	
4.5	Factoring Trinomials: $ax^2 + bx + c$	June 13	
4.6	Special Factoring	June 13, 14	
4.7	Factoring: A General Strategy	June 18	
4.8	Applications of Polynomial Equations	June 18, 19	
Chapter 5	**Rational Expressions, Equations, and Functions**		
5.1	Rational Expressions and Functions: Multiplying, Dividing, and Simplifying	June 19	
5.2	LCMs, LCDs, Addition and Subtraction	June 20	
5.3	Division of Polynomials	June 20, June 21	
5.4	Complex Rational Expressions	June 21, 25	
5.5	Solving Rational Equations	June 27	**Test 4: 5.5-6.8** **Thursday, July 12** Pre-test Review: July 11 Post-test Review: July 16
5.6c	Uniform Motion Applications	June 28	
5.7	Formulas and Applications	June 28	
5.8	Variation and Applications	July 3	
Chapter 6	**Radical Expressions, Equations, and Functions**		
6.1	Radical Expressions and Functions	July 3	
6.2	Rational Numbers as Exponents	July 4	
6.3	Simplifying Radical Expressions	July 4, 5	
6.4	Addition, Subtraction, and More Multiplication	July 5	
6.5	More on Division of Radical Expressions	July 9	
6.6	Solving Radical Equations	July 9	
6.7	Applications Involving Powers and Roots	July 10	
6.8	The Complex Numbers	July 10, 11	

Chapter 7	**Quadratic Equations and Functions**		
7.1	Basics of Solving Quadratic Equations	July 16	
7.2	The Quadratic Formula	July 17	
7.3	Applications Involving Quadratic Equations	July 17, 18	
7.4	More on Quadratic Equations	July 18	
7.5	Graphing $f(x) = a(x-h)^2 + k$	July 19	**Test 5: 7.1-6.3*** **Tuesday, July 31** Pre-test Review: July 30 Post-test Review: Aug 1
7.6	Graphing $f(x) = ax^2 + bx + c$	July 19, 23	
7.7a	Mathematical Modeling with Quadratic Functions	July 23, 24	
Trigonometry*	**Trigonometry***		
*6.1**	Trig Functions of Acute Angles	July 24, 25	
*6.2**	Applications of Right Triangles	July 25, 26	
*6.3**	Trig Functions of Any Angle	July 26, 30	
*8.1**	The Law of Sines	Aug 1, 2	
*8.2**	The Law of Cosines	Aug 2, 7	
Final Review	**Final Review**	Aug 7-9	**Cumulative Final Exam** **TBA Aug 13-21** Review: Aug 7-9

*Trigonometry material posted on D2L.

5. Basis of Student Assessment (Weighting)

(a) Assignments: 10%

There will be approximately 14 weekly online MyLab Math assignments, equally-weighted.

- Late assignments will not be accepted. Your lowest two assignments will be dropped to account for illness, etc.
- Computer/internet problems happen sometimes, so plan ahead and complete assignments early.

(b) Term Tests: 40%

There will be 5 in-class term tests, equally-weighted.

- There are no rewrites for term tests. If you have an emergency and must miss a test, email me as soon as possible and provide documentation (i.e. doctor's note). Otherwise, you will receive a zero for your missed test.
- No electronic device other than the approved calculator may be used on term tests. Papers, references, books, etc., may not be used on tests.

(c) Final Exam: 50%

The final exam is cumulative and 3 hours long.

- You must write the final exam at the scheduled time, except in emergency situations (scheduled flights and vacations are not considered emergencies).
- The final exam schedule will be posted on May 25 and spans Aug 13-21. Do not make commitments for this period until you know your exam dates.
- No electronic device other than the approved calculator may be used on the exam. Papers, references, books, etc., may not be used on the exam.

6. Grading System

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	Minimum level of achievement for which credit is granted; a course with a "D" grade cannot be used as a prerequisite.	1
0-49	F	Minimum level has not been achieved.	0

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 E-1.5 at **camosun.ca** for information on conversion to final grades, and for additional information on student record and transcript notations.

Temporary Grade	Description
I	*Incomplete*: 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	*In progress*: A temporary grade assigned for courses that, due to design may require a further enrollment in the same course. No more than two IP grades will be assigned for the same course. *(For these courses a final grade will be assigned to either the 3rd course attempt or at the point of course completion.)*
CW	*Compulsory Withdrawal:* 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.

7. Recommended Materials or Services to Assist Students to Succeed Throughout the Course

LEARNING SUPPORT AND SERVICES FOR STUDENTS

There are a variety of services available for students to assist them throughout their learning. This information is available in the College calendar, at Student Services, or the College web site at camosun.ca.

STUDENT CONDUCT POLICY

There is a Student Conduct Policy **which includes plagiarism**.
It is the student's responsibility to become familiar with the content of this policy.
The policy is available in each School Administration Office, at Student Services, and the College web site in the Policy Section.

CENTRE FOR ACCESSIBLE LEARNING

If you have documented needs that require accommodation in the classroom, please contact the Centre for Accessible Learning as soon as possible – there are resources and support available!
http://camosun.ca/services/accessible-learning/

Academic Integrity
The Department of Mathematics and Statistics has prepared a "red handout" called Student Guidelines for Academic Integrity to help you interpret college policies involving student conduct, academic dishonesty, plagiarism, etc. It is your responsibility to become familiar with the contents of the document and the college policies it references.

Math Help
You can get free face-to-face tutoring from our instructional assistants in the Math Help Centres/Labs in E224 & E342 (Lansdowne). Hours are posted on the doors and on the website http://camosun.ca/services/help-centres/.

D2L
This class uses Desire2Learn (D2L), an online course management system. All course related materials, grades, and announcements will be available on D2L. It is your responsibility to ensure you have access to D2L and to check it regularly. I recommend setting up alerts by clicking on your name in the top right corner and navigating to Notifications.

Class Time
It is expected that you will attend each class and be an active learner. This means participating in class discussions and attempting any problems the class is working on. Please come prepared with paper, pencils, ruler, and calculator. You may find it useful to bring a print or digital copy of the textbook.

If you find yourself ahead or behind the class, you can study on your own as long as you are not disrupting or distracting others.

Class Notes
I use a tablet during class and post all of the notes. To access PDFs of the filled-in class notes, use the link https://ln.sync.com/dl/cabe20a90/swzdd4jd-ynr8gh75-rwpq9g9g-g3wemdt5

If you would like access to my OneNote notes, please let me know and I will share the notebook with you.

MyLab
We use Pearson's MyLab Math for this course. The instructions for registering are attached to this outline and also available on D2L. Make sure you purchase your access code and get registered as soon as possible so you can start course work.

Our assignments are set up so you have 3 entry attempts and 5 different versions of each question. Make use of the Question Help button if needed.

Please note that the MyLab assignments are to be completed *in addition to* practicing the recommended exercises for homework. Doing the assignments alone is not enough practice to master the skills required for this course. The list of recommended exercises is attached to the end of this outline.

Pearson | MyLab | Math

Student Registration Instructions

To register for Math 137-001 2018S :

1. Go to www.pearson.com/mylab .
2. Under Register, select **Student** .
3. Confirm you have the information needed, then select **OK! Register now** .
4. Enter your instructor's course ID: lomas99305 , and **Continue** .
5. Enter your existing Pearson account **username** and **password** to **Sign In** .

   You have an account if you have ever used a MyLab or Mastering product.

   - » If you don't have an account, select **Create** and complete the required fields.
6. Select an access option.
   - » Enter the access code that came with your textbook or that you purchased separately from the bookstore.
   - » If available for your course,
     - Buy access using a credit card or PayPal.
     - Get temporary access.
7. From the You're Done! page, select **Go To My Courses** .
8. On the My Courses page, select the course name **Math 137-001 2018S** to start your work.

To sign in later:

1. Go to www.pearson.com/mylab .
2. Select **Sign In** .
3. Enter your Pearson account **username** and **password,** and **Sign In** .
4. Select the course name **Math 137-001 2018S** to start your work.

To upgrade temporary access to full access:

1. Go to www.pearson.com/mylab .
2. Select **Sign In** .
3. Enter your Pearson account **username** and **password,** and **Sign In** .
4. Select **Upgrade access** for **Math 137-001 2018S .**
5. Enter an access code or buy access with a credit card or PayPal.

Math 137 Recommended Exercises

from Intermediate Algebra, 12th edition, M.L. Bittinger

Section	Topic	Recommended Exercises
Chapter R	**Review of Basic Algebra**	
R.1	Set of Real Numbers	3, 11, 15, 17, 23, 33, 39, 41, 45, 49, 51, 59, 63, 71
R.2	Operations with Real Numbers	5, 15, 23, 25, 51, 53, 71, 75, 77, 87, 89, 95, 103, 109, 113, 141
R.3	Exponential Notation and Order of Operations	3, 5, 13, 19, 25, 29, 31, 33, 35, 37, 43, 47, 55, 57, 67, 83, 97, 103, 105, 107, 123, 127
R.4	Introduction to Algebraic Expressions	1, 3, 13, 15, 17, 23, 25, 31, 35, 37, 41, 57
R.5	Equivalent Algebraic Expressions	1, 7, 11, 19, 21, 25, 31, 35, 37, 41, 45, 47, 53, 59, 63, 65
R.6	Simplifying Algebraic Expressions	11, 15, 21, 23, 27, 35, 41, 43, 47, 53, 57, 67
R.7	Properties of Exponents and Scientific Notation	1, 5, 9, 13, 17, 21, 25, 29, 37, 41, 49, 53, 57, 61, 69, 71, 79, 81, 87, 89, 93, 97, 103, 105, 121
Chapter 1	**Solving Linear Equations and Inequalities**	
1.1	Solving Equations	9, 11, 23, 35, 37, 43, 47, 51, 55, 59, 61, 63, 69, 73, 77, 79, 101
1.2	Formulas and Applications	1, 5, 9, 13, 17, 19, 21, 23, 27, 29, 37, 51
1.3	Applications and Problem Solving	1, 5, 7, 9, 13, 15, 21, 23, 27, 29, 35
1.4	Sets, Inequalities, and Interval Notation	3, 5, 7, 9, 11, 13, 17, 27, 33, 35, 37, 41, 43, 47, 55, 59, 63, 71, 73, 77, 85, Translating for Success p. 119 (answers on p. A-4)
1.5	Intersections, Unions, and Compound Inequalities	1, 5, 13, 17, 21, 29, 37, 41, 45, 47, 51, 59, 61, 75
1.6a-d	Absolute-Value Equations	1, 5, 11, 15, 21, 31, 35, 37, 43, 51, 53, 57, 59, 63, 67
Chapter 2	**Graphs, Functions, and Applications**	
2.1	Graphs of Equations	1, 5, 15, 17, 25, 31, 33, 41, 45, 47, 49, 51
2.2	Functions and Graphs	1, 5, 7, 19, 21, 23, 27, 35, 43, 47, 49, 53, 55, 57, 59, 61, 73, 75
2.3	Finding Domain and Range	1, 5, 7, 9, 11, 15, 19, 23, 27, 31
2.4	Linear Functions: Graphs and Slope	1, 5, 9, 13, 19, 23, 25, 27, 31, 33, 41
2.5	More on Graphing Linear Equations	1, 5, 9, 13, 17, 19, 23, 29, 31, 39, 43, 45, 51, 55, 71, 75, 77
2.6	Finding Equations of Lines; Applications	1, 5, 9, 11, 19, 25, 29, 31, 33, 41, 45, 51, 59
Chapter 3	**Systems of Equations**	
3.1	Systems of Equations in Two Variables	3, 5, 13, 15, 17, 19
3.2	Solving by Substitution	1, 7, 11, 15, 17, 19, 23, 25
3.3	Solving by Elimination	3, 5, 9, 11, 15, 17, 27, 31, 35, 41
3.4a	Solving Applied Problems	1, 5, 7, 9, 13, 17, 19, 27, Translating for Success p. 274
3.7ab	Systems of Inequalities in Two Variables	1, 5, 11, 13, 17, 19, 21, Visualizing for Success p. 303
Chapter 4	**Polynomials and Polynomial Functions**	
4.1	Introduction to Polynomials and Polynomial Functions	1, 5, 7, 19, 21, 25, 29, 35, 41, 51, 55, 67, 73, 79
4.2	Multiplication of Polynomials	1, 5, 11, 13, 15, 21, 23, 27, 33, 41, 51, 55, 65, 71, 77, 81, 85, 91
4.3	Introduction to Factoring	1, 5, 9, 11, 17, 21, 25, 29, 33, 37, 43, 47, 49, 55
4.4	Factoring Trinomials: x^2+bx+c	1, 5, 7, 11, 13, 19, 21, 23, 25, 27, 29, 33, 35
4.5	Factoring Trinomials: ax^2+bx+c	1, 5, 9, 19, 25, 29, 33, 41, 45, 51
4.6	Special Factoring	1,5,11,17,25,33,35,39,43,47,53,61,63,69,71,75,79,89,95
4.7	Factoring: A General Strategy	1,3,5,7,11,17,19,23,25,29,31,35,43,49,51
4.8	Applications of Polynomial Equations	1, 5, 9, 13, 17, 21, 29, 33, 37, 39, 41, 47, 51, 53, 55, 63, 65, 69, 71, 73,75, 77, Translating for Success p. 387
Chapter 5	**Rational Expressions, Equations, and Functions**	
5.1	Rational Expressions, Functions: Mult./Div.	1, 3, 5, 7, 13, 15, 19, 21, 25, 27, 29, 31, 35, 37, 41, 45, 49, 51, 55, 57, 65
5.2	LCMs, LCDs, Addition and Subtraction	3, 11, 13, 19, 23, 27, 31, 33, 35, 39, 45, 49, 55, 63, 67, 71, 77
5.3	Division of Polynomials	1, 5, 9, 11, 15, 19, 21, 23, 29, 31, 33
5.4	Complex Rational Expressions	1, 5, 9, 13, 17, 19, 21, 23, 27, 29

5.5	Solving Rational Equations	1, 5, 9, 11, 15, 19, 23, 25, 27, 33, 35, 41, 43
5.6c	Uniform Motion Applications	27, 29, 31
5.7	Formulas and Applications	1-23 odd
5.8	Variation and Applications	1, 5, 7, 9, 15, 17, 21, 25, 29, 31, 39, 41, 55
Chapter 6	**Radical Expressions, Equations, and Functions**	
6.1	Radical Expressions and Functions	7, 9, 11, 13, 15, 19, 23, 27, 29, 35, 43, 45, 51, 53, 61, 63, 65, 67, 69, 71
6.2	Rational Numbers as Exponents	3, 7,15, 21, 29, 33, 39, 41, 43, 45, 49, 51, 53, 55, 59, 63, 69, 71, 73, 75, 79
6.3	Simplifying Radical Expressions	1, 3, 5, 9, 13, 17, 21, 25, 29, 33, 39, 41, 49, 53, 55, 59, 67, 71, 75,79, 83, 87, 89
6.4	Addition, Subtraction, and More Multiplication	1, 5, 9, 13, 17, 19, 23, 33, 37, 43, 47, 51, 57, 61, 67, 71, 73, 81
6.5	More on Division of Radical Expressions	1, 5, 9, 13, 17, 21, 25, 29, 31, 33, 39, 41
6.6	Solving Radical Equations	1, 5, 9, 17, 19, 21, 27, 29, 33, 37, 41, 47, 53, 55, 57
6.7	Applications Involving Powers and Roots	1, 5, 7, 11, 13, 17, 19, 21, 23, Translating for Success p. 545
6.8	The Complex Numbers	1, 5, 13, 17, 19, 27, 31, 35, 39, 47, 71, 77, 81, 87, 99, 111
Chapter 7	**Quadratic Equations and Functions**	
7.1	Basics of Solving Quadratic Equations	1, 5, 9, 13, 17, 21, 25, 33, 39, 43, 47, 49, 51, 55, 57
7.2	The Quadratic Formula	1, 3, 11, 17, 21, 29, 33, 35, 41, 45, 59
7.3	Applications Involving Quadratic Equations	3, 5, 9, 11, 13, 19, 21, 25, 31, 35, 37, 39, 41, 43, 47
7.4	More on Quadratic Equations	1, 5, 9, 15, 17, 21, 23, 29, 31, 33, 35, 37, 39, 43, 47, 49, 55
7.5	Graphing $f(x)=a(x-h)^2+k$	1, 5, 9, 13, 17, 19, 21, 23, 27
7.6	Graphing $f(x)=ax^2+bx+c$	1, 5, 7, 9, 15, 19
7.7a	Mathematical Modeling with Quadratic Functions	1, 3, 7, 9, 11
Trigonometry*	**Trigonometry***	
*6.1**	Trig Functions of Acute Angles	1-29 odd, 37, 49, 55, 61, 69, 71, 79-91 odd, 97
*6.2**	Applications of Right Triangles	1, 3, 9, 13, 15, 17, 21, 25, 29, 31, 35
*6.3**	Trig Functions of Any Angle	1,5,9,13,15,19,23,25,29,39, 41,45,47,51,61,75, 83, 87, 93, 97,105
*8.1**	The Law of Sines	1, 3, 5, 9, 13, 15, 17, 21, 25, 27
*8.2**	The Law of Cosines	1, 3, 7, 9, 13, 17, 19, 21, 25, 31
Final Exam	Review	Chapter Tests in textbook, Cumulative Review Ch. 1-7 p.661, Trig * resources, and Exam Review on D2L

*Trigonometry material posted on D2L.