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.

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1. Instructor Information

(a)	Instructor:	Bogdan Verjinschi	
(b)	Office Hours:	TBA	
(c)	Location:	E 244	
(d)	Phone:	250-370-3494	Alternative Phone:
(e)	Email:	verjinschi@camosun.bc.ca	
(f)	Website:	http://verjinschi.disted.camosun.bc.ca/	

2. Intended Learning Outcomes
(No changes are to be made to these Intended Learning Outcomes as approved by the Education Council of Camosun College.)

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

1. Read and write mathematics at a level sufficient for entry into first-year calculus.
2. Write equations of circles and ellipses in standard form and graph these relations. Expand binomials using Pascal's triangle. Factor and simplify expressions with rational exponents. Solve polynomial and rational inequalities. State the Remainder, Factor and Rational Zeros Theorems and use these theorems to factor polynomials and find their real zeros.
3. Define the term function. Find the domain of functions. Compose and decompose functions. Construct algebraic functions to model simple real-life problems. Solve optimization problems modelled with quadratic functions.
4. Identify the graphs of common algebraic functions. Evaluate and graph piecewise defined functions. Interpret and graph multiple transformations of functions. Analyze and graph polynomial and rational functions.
5. Find inverse functions algebraically and graphically. Explain the relationship between exponential and logarithmic functions. Graph exponential and logarithmic functions and their transformations. Prove the properties of logarithms and use these properties to simplify expressions and solve equations. Solve applied problems involving pH, the Richter scale, decibels, compound interest, exponential growth, exponential decay and logistic growth.
6. State the right triangle definitions for the trigonometric functions. Use reference triangles to find exact values of trigonometric functions of special angles. Define a radian and work with radian measure. State the unit circle definitions for the sine and cosine functions. Graph the six trigonometric functions and transformations of these functions. Analyze sinusoidal graphs and construct possible equations. Graph the inverse sine, cosine and tangent functions. Find exact values for compositions of trigonometric and inverse trigonometric functions. Write compositions as algebraic expressions.
7. Derive the Pythagorean identities, the sum and difference identities, the double angle identities, the power reducing identities, and the half angle identities. Use these identities to simplify expressions and verify other identities. Find exact and approximate solutions of trigonometric equations, including equations involving identities and multiples of angles.
8. Identify patterns in sequences and write formulas for the general terms. Simplify and evaluate basic sums of sequences. Derive formulas for the nth terms of arithmetic and geometric sequences and for the sums of the first n terms of these sequences. Solve word problems involving arithmetic and geometric sequences and series.
9. Evaluate limits graphically, numerically and algebraically. Use the definition of a derivative to differentiate basic polynomial, rational and radical functions. Differentiate polynomials using standard rules. Demonstrate an understanding of both the geometrical and physical interpretations of derivatives.

3. Required Materials

(a)   *Algebra and Trigonometry, S*ullivan, 2nd custom edition, and

(b)   Calculus supplement

(c) CALCULATOR:

As per Math Department policy, the only calculator permitted for use on the tests and the final exam is the **Sharp EL-531X** (or the discontinued EL-531W) scientific calculator. No other make/model of calculator is permitted, nor are other electronic devices such as cell phones, iPods, electronic translators, etc.

4. Course Content and Schedule

This course provides excellent preparation for MATH 100. Students away from algebra for more than a year should either refresh with MATH 073 before taking 115, or register for MATH 105 instead of 115. Topics: polynomial, rational, exponential, logarithmic, trigonometric and inverse trigonometric functions; sequences and series. (T)
Note: Credit may be obtained for only one of MATH 105, 107 or 115.

SECTIONS

1. Review, Equations, Graphs
- Are you ready for Pre-Calculus?   Package (Dept. Website)
- Algebra Review   R.5, R.6, R.7, R.8,
- Equations, Inequalities   1.1, 1.2, 1.4, 1.5
- Graphs of Equations $2.1 \rightarrow 2.4$
- Conics $11.1 \rightarrow 11.4$

2. Functions
- Properties of Functions $3.1 \rightarrow 3.3$
- Graphing - transformations $3.4 \rightarrow 3.6$
- Linear & Quadratic Functions $4.1 \rightarrow 4.4$
- Quadratic Inequalities   4.5
- Polynomial & Rational Functions $5.1 \rightarrow 5.3$
- Polynomial & Rational Inequalities   5.4
- Factor/Remainder Theorem   5.5

3. Exponential & Logarithmic Functions
- Composite & Inverse Functions   6.1, 6.2
- Logarithmic, Exponential Functions $6.3 \rightarrow 6.5$
- Equations & Applications $6.6 \rightarrow 6.8$

4. Trigonometry – Part 1
- Radians, basic trigonometry $7.1 \rightarrow 7.3$
- Trig functions of any angle   7.4, 7.5
- Graphs of trig functions $7.6 \rightarrow 7.8$
- Inverse Trig Functions   8.1, 8.2

5. Trig – Part 2, Sequences, Series, Intro to Calculus
- Basic Trig Identities   8.3
- Further Trig Identities $8.4 \rightarrow 8.5$
- Trigonometric Equations   8.6, 8.7
- Sequences & Series $13.1 \rightarrow 13.3$
- Introduction to Calculus   Package (Bookstore)

Prerequisite: "B" in Principles of Math 11, or Pre-calculus 11, or MATH 137, or MATH 073, or MATH 092; ***or*** *"C" in Principles of Math 12, or Pre-calculus 12, or MATH 093, or MATH 105, or MATH 107, or MATH 173;* ***or*** *assessment*

Note: Credits may be obtained for only one of MATH 105, MATH 107 or MATH 115.

5. Basis of Student Assessment (Weighting)
(This section should be directly linked to the Intended Learning Outcomes.)

(a) 4 Assignments :   10%
(b) 4 Tests: 40%
(c) Exam :   50%
NOTE.
ASSIGNMENTS: Late assignments are not accepted.
TESTS: *If you don't do not provide a reason for a missed test you may get a zero on that test.*
Tentative dates : **Test 1**: Jan 27 ,**Test 2**: Feb 17 ,**Test 3**: March 10, **Test 4**: March 31
FINAL EXAM*: All final exams will occur during the final exam period, April 13-21*.
The final exam will cover the entire course and will be 3 hours long.
Students must be available to write the final exam at the scheduled time.
As stated in the current college calendar "students are expected to write tests and final examinations at the scheduled time and place."
Exceptions will only be considered due to emergency circumstances as outlined in the calendar.
Holidays or scheduled flights are not considered to be emergencies.

Important Dates:

January 5	First day of class
Feb 4	Fee deadline
Feb 9	Family Day (no class)
Feb 12-13	Reading Break (no class)
Feb 23	Withdrawal deadline
Apr 3	Good Friday (no class)
Apr 6	Easter Monday (no class)
Apr 10	Last Day of class
Apr 13-21	Final exam period

Please see also: http://camosun.ca/learn/calendar/current/pdf/academic-policies.pdf

6. Grading System
(No changes are to be made to this section unless the Approved Course Description has been forwarded through the Education Council of Camosun College for approval.)

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.