School of Arts & Science
MATHEMATICS DEPARTMENT

MATH 115-section 001
Pre-Calculus
Semester/Year, eg, 2009 Spring & Summer

COURSE OUTLINE

The Approved Course Description is available on the web @ _____

⚘ *Please note: this outline will be electronically stored for five (5) years only.*
It is strongly recommended students keep this outline for your records.

1. Instructor Information

(a)	Instructor:	Richard Tschritter
(b)	Office Hours:	10:50-11:20 am,2:00-2:30 pm M Tu & Th; Wed 9:20-11:20am
(c)	Location:	E-268
(d)	Phone:	250-370-3494	Alternative Phone:	
(e)	Email:	Tschritter@camosun.bc.ca
(f)	Website:	Tschritter.disted.camosun.bc.ca

2. Intended Learning Outcomes
(No changes are to be made to this section, unless the Approved Course Description has been forwarded through EDCO for approval.)

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

1. Evaluate functions, find the domain of functions, compose and decompose functions and find inverse functions.
2. Graph polynomial and rational functions using symmetry, intercepts, long run behaviour, asymptotes and a table of signs.
3. Prove the Remainder and Factor Theorems and use the theorems to factor polynomials and find their real and complex zeros.
4. Graph exponential and logarithmic functions and their transformations.
5. Prove the properties of logarithms and use these properties to simplify expressions, and solve equations and applied problems.
6. Graph the six trigonometric functions and their transformations and the three basic inverse trigonometric functions.
7. Use the unit circle definitions to derive the Pythagorean identities, the sum and difference formulas, and the double angle and half angle formulas. Use these identities to simplify expressions, solve equations and verify other identities.
8. Use trigonometric functions to model real-life problems involving cyclical patterns.
9. Evaluate limits, find derivatives using the definition, find equations of tangent lines and solve optimization problems using polynomial calculus.

10. Read and write mathematics at a level sufficient for entry into first year calculus.

3.   Required Materials

(a) Texts Larsen & Hostetler, 7 th edition

(b) Other

4.   Course Content and Schedule
(Can include: class hours, lab hours, out of class requirements and/or dates for quizzes, exams, lectures, labs, seminars, practicums, etc.)

COURSE OUTLINE FOR MATH 115 Spring-Summer /09

Instructor: Rich Tschritter, Ewing-268   email: **tschritter@camosun.bc.ca**
                                 website: **tschritter.disted.camosun.bc.ca**

Text: Precalculus, Seventh Edition, by Larson & Hostetler   Class room: F-338, 9 to 10:40 am
 Calculator: Scientific- Sharp EL-531W   Mon, Tues, & Thursday
                                                                            July 16, in F-302 only exception

CHAPTER A: APPENDIX A Review

#	Text	Time	
1	A.3-4	2	Rational Expressions
2	A.5	1	Solving Equations
3	A.6,2.7	1	Solving Inequalities

CHAPTER 1: FUNCTIONS AND THEIR GRAPHS

#	Text	Time	
4	1.3	1	Functions, Linear Functions in Two Variables
			TAKE-HOME TEST # 1
5	1.4	1	Functions
6	1.5,1.6	1	Analyzing Graphs of Functions, Parent Functions
	1.7	1	Transformations of Functions
		1	TEST 1, Lessons 1 to 6
7	6.2,2.1	1	Parabolas, **ignore focus and directrix**
8	6.3	1	Ellipse, **ignore foci and eccentricity**
9	6.4	1	Hyperbola, **ignore foci and eccentricity**
10	1.8	1	Combinations of Functions, Composite Functions
11	1.9	1	Inverse Functions
			TAKE-HOME TEST #2

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              14 hours
 CHAPTER 2: POLYNOMIAL AND RATIONAL FUNCTIONS

   #   Text   Time

12	2.2	1	Polynomial Functions of Higher Degree
13	2.3	1	Polynomial and Synthetic Division
14	2.5	2	Zeros of Polynomial Functions
15	2.6	2	Rational Functions
		1	**TEST 2, Lessons 7 to 15**

CHAPTER 3: EXPONENTIAL AND LOGARITHMIC FUNCTIONS

#	Text	Time	
16	3.1	1	Exponential Functions and Their Graphs
17	3.2	2	Logarithmic Functions and Their Graphs
18	3.3	1	Properties of Logarithms
19	3.4	1	Exponential and Logarithmic Equations
20	3.5	3	Exponential and Logarithmic Models
			Take-Home-Test #3

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15 hours

CHAPTER 4: TRIGONOMETRY

#	Text	Time	
21	4.1	1	Radian and Degree Measure
22	4.3	1	Right Triangle Trigonometry
23	4.2+4.4	2	Trigonometric Functions: The Unit Circle
		1	**Test 3, Lessons 16 to 23**

24	4.5	1	Graphs of Sine and Cosine Functions
25	4.6	1	Graphs of Other Trigonometric Functions
26	4.7	1	Inverse Trigonometric Functions

CHAPTER 5: ANALYTIC TRIGONOMETRY

#	Text	Time	
27	5.1	2	Using Fundamental Identities
28	5.2	1	Verifying Trigonometric Identities

11 hours
TAKE-HOME-TEST #4

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29	5.3	2	Solving Trigonometric Equations
30	5.4	2	Sum and Difference Formulas
31	5.5	2	Double and Half Angle Formulas

		1	**TEST 4, Lessons 24 to 31**

7 hours

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18 hours

CALCULUS

#	Text	Time	
32	1	Limits	
33	1	The Secant line; Average Velocity	
34	1	The Tangent line	
35	1	The Derivative Function	
36	1.5	Differentiation Rules for Polynomials; Instantaneous Velocity	
37	1.5	Graphing Polynomial Functions	
38	1	Max/Min Problems	
	1	TEST 5, Lessons 32 to 38	

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10 hours

Review: 3 hours

Final exam, Lessons 1 to 38

  NOTE: for the conic sections an interesting website to look at which shows the intersection of a plane and a cone is:

http://clem.mscd.edu/~talmanl/HTML/ConicSections.html

Appendix A: the questions and answers for the review material can be accessed online at the link shown below. There may be some booklets in the book store that you can buy if you wish to.

http://college.hmco.com/mathematics/larson/precalculus_acc/1e/resources/aa.html

All of the exercises and answers are included here.

Another good resource for algebra review is:

http://tutorial.math.lamar.edu/pdf/AlgebraTrig.pdf

Also some tips for note taking, studying, writing tests etc:

http://tutorial.math.lamar.edu/Extras/StudyMath/HowToStudyMath.aspx

    FIRST DAY HANDOUT FOR Rich Tschritter's MATH 115 STUDENTS

 Welcome to my class. I hope that the term goes well for you. Please take some time to read the following. I think you will find it helpful and informative.

 A. SOME GENERAL COMMENTS

1. HOW IMPORTANT IS REGULAR ATTENDANCE? It is essential that you attend

every class. If for some reason you miss a class, you will need to
act quickly to get caught up. Get a copy of the notes from one of
your classmates. Work through the notes very carefully.

2. HOW MUCH TIME SHOULD I BE SPENDING ON MATH EVERY WEEK? If up to date,
a typical student will need to spend a minimum of 3 to 5 hours per day.
It is highly preferable that this be done before the next class.

3. TEXTBOOK. We have just moved to the seventh edition of PreCalculus by
Larson & Hostetler.

4. Also, do not purchase the calculus booklet **unless you wish to** as we will not be
using it in this class, I have a handout which I will be using.

5. CALCULATORS. Scientific- Sharp EL-531W. Graphing and programmable calculators
may not be used on any test or on the final exam.

B. HOW TO GET HELP

1. Please ask questions in class. While we may not have enough time in class to answer all questions
we can arrange time for help outside class.

2. Please come to my office (Ewing-268) for help. You may make an appointment, or just drop in.My
official office hours are from 10:50-11:20 am and 2:00-2:30 pm Monday to Thursday.
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3. I strongly urge you to find one or more people in this class who you can study with. For many
people, learning mathematics in a social setting with their peers can be very rewarding and productive.

4. Free tutoring is available in The Mathlab, Tech 142, on Interurban campus and in Ewing 224 and
342 at Lansdowne campus. The lab is open
  (see schedule posted on door)

C. EVALUATION PROCEDURES FOR THE COURSE

1. TERM MARK. You will be doing a number of take-home tests (4). These can
be done in consultation with other students in your class, but with
the help of nobody else. They will be overdue if not handed in at the
beginning of the class on the due date, but can be handed in up to one
day late with only a 10% mark deduction on your score.

The term mark is the average of the scores on your in-class tests and take-home-tests (4). The
take-   home-tests are worth 15% and the class tests are 35% and the final exam is 50%. However, if
your take-home test scores are satisfactory (overall average is at least 60%), you will be allowed to
throw out your worst test before the average is calculated, provided **that you have handed in all HW
assignments on time and have written all class Tests!.**
If you miss an in-class test for ANY reason, you must contact me (e-mail) as soon as
possible to make other arrangements or a zero will be given. There will be no make-ups.
2. FINAL EXAM. The final exam for this course is to be written by all
students on the day and time scheduled. The examinations for this
term will be held Aug 10-14, 2009. Please make sure you are available during
this period.
3. MARK FOR THE COURSE. Providing you have met all the requirements listed above your course
mark is the larger of:

    a) The average of your term mark and your final exam mark (each is

worth 50%)
b) Your final exam mark

4. LETTER GRADE. Your course mark is then translated to a letter grade
using the following table:

		GPE				GPE				GPE			GPE
A+	90 – 100	9		B+	77 –79	6		C+	65 – 69	3		F< 50	0
A	85 -- 89	8		B	73 – 76	5		C	60 – 64	2			
A-	80 – 84	7		B-	70 – 72	4		D	50 – 59	1			

D. USING THIS COURSE AS A PREREQUISITE

You will need a recent B in this course in order to proceed to Math 100.
You should be advised that the success rate for students in Math 100 who
have not received at least a B in Math 115 or Math 12 is very low.

You will also need a recent B in order to proceed to Math 110.

A recent C in Math 115 is sufficient for entry to Math 108, but you can
expect with this sort of mark to have to work very hard.

E ONE MORE THING

In order to make the class lecture more useful it is absolutely essential that you do all HW from the Text and ask questions in class as well and seek extra help as soon as possible. I hope you will take advantage of all help that is available and see me for any questions or help that you might need. Good luck and may the Math be with you!

F H0W TO GET THE MOST OUT OF THIS COURSE!

1. Your success in this course rests largely with you.

2. Please do not be afraid to ask questions and be patient with other members of the class who may be struggling with this course.

3. Only one person should talk at a time. Please avoid private conversations while someone else is talking.

4. My objective is to make this course as useful to you as possible.

G. Intended Learning Outcomes
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7. Use the unit circle definitions to derive the Pythagorean identities, the sum and difference formulas, and the double angle and half angle formulas. Use these identities to simplify expressions, solve equations and verify other identities.
8. Use trigonometric functions to model real-life problems involving cyclical patterns.
9. Evaluate limits, find derivatives using the definition, find equations of tangent lines and solve optimization problems using polynomial calculus.
10. Read and write mathematics at a level sufficient for entry into first year calculus.

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, Registrar's office of the College web site at

5. Basis of Student Assessment (Weighting)
(Should be linked directly to learning outcomes.)

(a) Assignments

(b) Quizzes

(c) Exams

(d) Other (e.g., Attendance, Project, Group Work)

6. Grading System
(No changes are to be made to this section, unless the Approved Course Description has been forwarded through EDCO 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
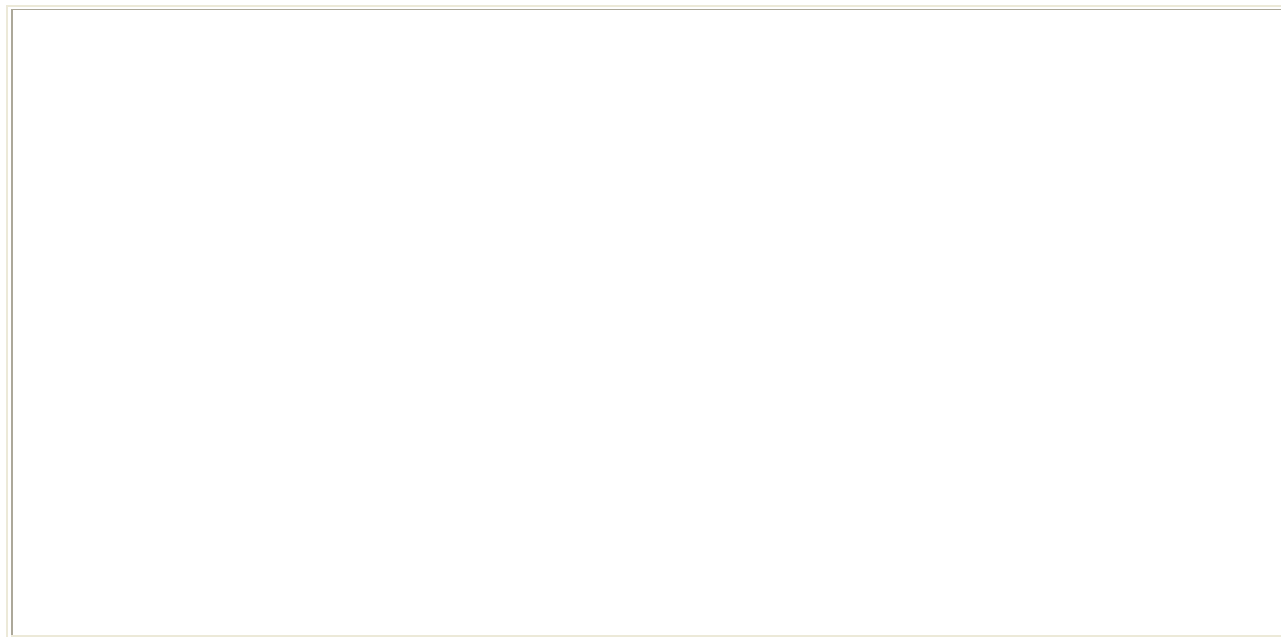
LEARNING SUPPORT AND SERVICES FOR STUDENTS

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 on the College web site in the Policy Section.

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, Registrar's office of the College web site at http://www.camosun.bc.ca
ACADEMIC CONDUCT POLICY: It is the student's responsibility to become familiar with the content of this policy. The policy is available in each School Administration Office, Registration, and on the College web site in the Policy Section. www.camosun.bc.ca/divisions/pres/policy/2-education/2-5.html

Tentative Pacing Schedule Math 115 Spring-Summer /09

Wk	Month	Monday	Tuesday	Wednesday	Thursday	Friday
1	May	4 Review A3-A4	5 Review A4-A5-A6	6	7 Finish review A6, & 2-7	8
2	May	11 1-3 & 1-4 Fee Deadline 7 wk courses	12 1-4 & 1-5 T-H-T # 1	13	14 1-5 & 1-6 & 1-7	15
3	May	18 **HOLIDAY**	19 **TEST # 1** Fee Deadline 14 wk courses	20	21 10-2 & 2-1	22
4	May	25 10-3 & 10-4	26 10.4 & 1-8	27	28 1-9 & 2-2 T-H-T # 2	29
5	June	1 2-3 & 2-4	2 2-4 & 2-5	3 Last day to withdraw from 7 week courses	4 2-5 & 2-6	5
6	June	8 2-6 & Review	9 **Test # 2**	10	11 3-1 & 3-2	12

7	June	15 3-2 & 3-3	16 3-3 & 3-4	17	18 3.5 T-H-T # 3	19 Last day of instruction for 7 wk courses
8	June	22 4.1 & 4-3	23 4-2 & 4-4	24	25 4-5 & 4-6	26
9	June	29 **Test # 3**	30 4-6 & 4-7	July 1 **Holiday**	July 2 5-1 & 5-2 T-H-T # 4	July 3
10	July	6 5-2 & 5-3	7 5-3 & 5-4	8	9 5-4 & 5-5	10
11	July	13 5-5	14 5-5	15	16 **Test # 4 In F 302 this day only**	17
12	July	20 Limits, secant line, & velocity	21 Secant line & tangent line	22	23 Derivative & derivative rules	24
13	July	27 Derivative rules & velocity, rate of change	28 Graphing polynomial functions	29	30 Max-min problems with Calculus	31
14	August	3 **Holiday**	4 **Test # 5**	*5*	6 Review	7 Last day of instruction 14 wk courses
15	August	10 **Exams S-S 14 wk courses**	11 **Exams S-S 14 wk courses**	12 **Exams S-S 14 wk courses**	13 **Exams S-S 14 wk courses**	14 **Exams S-S 14 wk courses**
16	August	17	18	19	20	21
17	August	24 **EXAMS** 7 wk courses	25 **EXAMS** 7 wk courses			

F-338, except for July 16/09, in F-302 on that day only!