CAPILANO UNIVERSITY COURSE OUTLINE	
Term: **FALL 2014**	Course No. **MATH 108**
Course: **CALCULUS I FOR BUSINESS, SOCIAL SCIENCES AND LIFE SCIENCES**	Credits: **3.0**
Instructor: **TBA**	

COURSE FORMAT: Three hours of class time, plus an additional hour of supplemental activity delivered through on-line or other activities for a 15 week semester, which includes two weeks for final exams.

PREREQUISITES: Math Placement Test (MPT); or Precalculus 12 with a minimum "B" grade; or MATH 105 with a minimum "C-" grade; or BMTH 054 with a minimum "C+" grade.

COURSE OBJECTIVES:

General: Understand the concepts of differential calculus and the application of these concepts to business and the social sciences, with emphasis on geometric interpretation and the appropriate use of graphing calculator technology.

Student Learning Outcomes: Upon successful completion of the course, the student should be able to:

- investigate properties of data using graphical representations;
- construct mathematical models for data sets using continuous functions;
- use the derivative to investigate the mathematics of change; and
- communicate results in coherent written form using proper notation and terminology.

REQUIRED COURSE MATERIALS:

Textbook: Lial, Greenwell, Ritchey. Calculus with Applications: Custom Edition for Math 108 at Capilano University. 10th ed. Pearson/Addison Wesley, 2010.

Calculator: Students must have a non-symbolic graphing calculator. The Mathematics and Statistics Department recommends a T.I.-83+ or T.I.-84+ calculator with non-symbolic capabilities. Graphing calculator instruction (in the classroom or in workshops) will only be given using one of these calculators. Any student who intends

to use any other calculator must have it approved by his/her instructor at the start of the semester. For more detailed information on graphing calculators go to: http://www.capilanou.ca/math/Graphing-Calculator-Policies/

Class Notes: Available for purchase in the Bookstore.

RECOMMENDED COURSE SUPPLEMENTS:

Exam Booklet: Practice exams and solutions from previous terms (available for purchase from Bookstore).

Reference Texts: Available in the Math Learning Centre (BR289).

COURSE CONTENT:

Topics	Text Reference	Weeks (approx.)
Basic Functions and Graphs; Modeling in Business – cost, revenue, profit, supply & demand, equilibrium, break-even analysis; Models from Data - Exponential, Logistic, Polynomial and Sine.	1.1,1.2 Ch. 2 & supplement	2.0
Limits, Continuity, Intermediate Value Theorem, Average Rate of Change, Instantaneous Rate of Change, Tangent Line, Derivative, Percentage Change, Determining Slopes Numerically and Algebraically, Drawing Slope Graphs.	Ch. 3	3.0
Simple Derivative Rules, Power Rule, Sum Rule, Chain Rule, Product Rule, Quotient Rule, Logarithmic and Exponential Derivatives, Trigonometric Derivatives.	Ch. 4 13.1,13.2	2.0
Increasing/Decreasing Functions, Inflection Points, Concavity, Relative Extrema, Curve Sketching.	Ch. 5	1.5
Absolute Extrema, Optimization, Implicit Differentiation, Related Rates, Differentials and Linear Approximation.	Ch. 6	3.0
Newton's Method	12.6	0.5

EVALUATION PROFILE:

Final grades for the course will be computed based on the following schedule:

Term Work	*55%
Final Exam	*35%
Personal Evaluation	10%
TOTAL	100%

*   If the percentage achieved on the Final Exam is higher than the percentage achieved on the Term Work component, then the Final Exam weight will be increased to 55% and the Term Work will be decreased to 35%.

Term work will consist of tests, quizzes and/or assignments. While the weighting of individual tests, etc. is at the discretion of the instructor, no single test will exceed 25% of the final total. The weight of tests, quizzes and assignments will be announced in class in advance.

PERSONAL EVALUATION:

In the absence of exceptional circumstances, which are at the instructor's discretion, the personal evaluation component of the final grade will be pro-rated to the rest of the grade. For example, a 10% personal evaluation component would be determined by dividing the remaining mark out of 90 by 9. The most common circumstance justifying an increased personal evaluation mark is a student's improved performance in the final examination relative to the term work, which the instructor feels justifies an elevated letter grade.

SUPPLEMENTAL 4TH HOUR ACTIVITY:

Each section has, in addition to the 3 hours of scheduled classroom time per week, a supplemental activity. This activity might be a scheduled tutorial or lab, an on-line activity, a group meeting, or some other activity as indicated by your instructor. Students are expected to participate in this additional activity. If this is not possible, students should consult their instructor to determine how this missed activity can be completed. It is in the student's best interest to ensure that any missed course activity is completed.

GRADING PROFILE: Letter grades will be assigned according to the following guidelines:

A+ 90 - 100%	B+ 77 - 79%	C+ 67 - 69%	D 50 - 59%
A 85 - 89%	B 73 - 76%	C 63 - 66%	F 0 - 49%
A- 80 - 84%	B- 70 - 72%	C- 60 - 62%	

Students should refer to the University Calendar for the effect of the above grades on grade point average.

TESTS: Dates for tests will be announced beforehand in class.

HOMEWORK: It is expected that students spend at least 8 hours per week doing course work outside of class time.

ASSIGNMENTS: Assignments are due at the beginning of class, unless otherwise announced. Late assignments may receive a grade of zero.

OPERATIONAL DETAILS:

University Policies: Capilano University has policies on Academic Appeals (including appeal of final grade), Student Conduct, Cheating and Plagiarism, Academic Probation and other education issues. These and other policies are available on the University website.

Attendance: Regular attendance is essential. If classes are missed, it is the student's responsibility to become aware of all information given out in the classes or tutorials, including times of examinations and assignment deadlines.

Missed Exams: Normally, a score of zero will be given for a missed exam, test, quiz, lab, etc. In some exceptional situations, the student will be permitted to write a make-up test, defer the lab to a later date or to replace the score by other marks.

The situations in which a score of zero may be avoided are those for which the student meets **all** of the following conditions:

1. Circumstances clearly beyond the control of the student caused the exam, test, quiz, lab, etc. to be missed. Such circumstances include serious illness or injury, or death of close family member. They do **NOT** include forgetting about the test, lack of preparation for the test, work-related or social obligations.

2. The student has notified the instructor (or the Pure and Applied Science office staff, if the instructor is not available) about the missed exam, test, quiz, lab, etc. Such notification **MUST** occur in advance, if possible, or at the latest, on the day of the exam, test, quiz, lab, etc.

3. Proof of the circumstances is provided. Proper proof of illness or injury requires a medical certificate from a doctor, who may also be consulted.

4. The student has been fully participating in the course up until the circumstances that prevented the writing of the exam, test, quiz, lab, etc. **Fully participating means attending almost all of the classes and turning in almost all assignments in the course.**

The options offered to the student who meets the four conditions are decided by the instructor. They will not necessarily meet the convenience of the student.

Final Exam Period: Students should note that the final exam period is from **TBA** and that they can expect to write exams at any time during this period. Individual exam times will not normally be rescheduled because of holidays, work, or other commitments. While efforts are made to spread exams throughout the exam period,

an individual's particular course combination may result in exams being scheduled close together, or spread widely through the entire exam period.

Cheating/Plagiarism: Students caught cheating on a test will normally receive a grade of "F" for the course and may be expelled from the University. Plagiarism (including the copying of any part of assignments, laboratory reports and essays) is a serious offence and is a form of cheating.

Incomplete Grades: Incomplete grades ("I") are given only when special arrangements have been agreed upon with the instructor prior to the end of the semester. Since "I" grades are granted only in exceptional circumstances (usually health problems), their occurrence is rare.

English Usage: Students are expected to use correct standard English in their written and oral assignments, exams, presentations and discussions. Failure to do so may result in reduced grades in any part of the Evaluation Profile.   Please refer to the guidelines provided in the Capilano Guide to Writing Assignments (available from the University Bookstore).

Mathematical Language: Use of proper Mathematical terminology and notation is an important component of Mathematics. Marks may be deducted for improper usage. For full details, please refer to the Math Department Style Guide at: http://www.capilanou.ca/math/Math-Department-Style-Guide/

Mathematics Learning Centre: Instructional help and Mathematics learning aids, such as video tapes, computer software and reference texts are available to students in the Birch Building (BR289).

Emergency Procedures: Please read the emergency procedures posted on the wall of the classroom.