

# MATHEMATICS 1000

## Calculus I

Fall 2007

Slot	Section	Classroom	Instructor (Office)
F04	007	EN-2006	Dr Chris Radford(HH-3001)

## Prerequisite

Mathematics 1090, 1080 or a combination of placement test and high school Mathematics scores acceptable to the Department of Mathematics and Statistics

## Text and Course Outline

Found on the back of this sheet

## Evaluation

A term mark out of 40 will be given based on two fifty-minute tests (each worth 15 marks) and on several assignments (worth a total of 10 marks). The final examination will be worth 60 marks.

## Supplementary Examinations

The Department of Mathematics and Statistics offers supplementary examinations to students satisfying all of the following.

- the student is in clear academic standing,
- the student has a passing term mark, and
- the student's final grade is 45 to 49.

## Important Dates

Sept. 19	Last day to add courses
Oct. 12	Friday, <b>Class test #1</b>
Oct. 8	Thanksgiving Day Holiday – No lectures
Oct. 9	Second and last day of midterm break
Oct. 11	For this Thursday only, use Tuesday's schedule
Oct. 24	Last day to drop courses without academic prejudice
Nov. 12	Remembrance Day Holiday. No lectures
Nov. 14	Wednesday, <b>Class test #2</b>
Nov. 30	Last day of lectures
Dec. 5-14(inclusive)	Final examination period

## Notes

- **Assignments** will (usually) be given once a week, and must be handed in at the start of class on the due date. Late assignments will not be marked. Staple your copy of the question sheet – name and MUN number filled in – to the front of your answers, before submitting your assignment solutions.
- **Office hours** (HH-3001) will be 2.00pm-4.00pm on Monday, 2.00pm-4.00pm on Tuesday; other times by appointment.
- Class handouts, assignments and assignment solutions will be posted on our Web site: [www.math.mun.ca/~cradford](http://www.math.mun.ca/~cradford).
- Graphing or programmable calculators will not be permitted during tests and the final exam.

# MATHEMATICS 1000 (Calculus I)

Course Outline – Fall 2007

Text: *Single Variable Calculus: Memorial University Edition*, by James Stewart **OR** *Single Variable Calculus: Early Transcendentals*, 5th Edition, by James Stewart **OR** *Calculus: Early Transcendentals*, 5th Edition, by James Stewart. Sections of the text listed below are those of the “Memorial University Edition”.

## UNIT 1 LIMITS AND DERIVATIVES

- 1.1 The Limit of a Function (Section of Custom Edition: 2.2)
- 1.2 Calculating Limits Using the Limit Laws (Section 2.3)
- 1.3 Continuity (Section 2.5)
- 1.4 Limits at Infinity; Horizontal Asymptotes (Section 2.6)
- 1.5 The Tangent and Velocity Problems (Sections 2.1)
- 1.6 Derivatives (Sections 2.7 and 2.8)

## UNIT 2 DIFFERENTIATION RULES

- 2.1 Derivatives of Polynomial and Exponential Functions (Section 3.1)
- 2.2 The Product and Quotient Rules (Section 3.2)
- 2.3 Derivatives of Trigonometric Functions (Section 3.4)
- 2.4 The Chain Rule (Section 3.5)
- 2.5 Implicit Differentiation (Section 3.6)
- 2.6 Higher Order Derivatives (Section 2.8)
- 2.7 Derivatives of Logarithmic Functions (Section 3.6)
- 2.8 Related Rates (Section 3.9)

## UNIT 3 APPLICATIONS OF DIFFERENTIATION

- 3.1 Maximum and Minimum Values (Section 4.1)
- 3.2 The Mean Value Theorem (Section 4.2)[Optional]
- 3.3 How Derivatives Effect the Shape of a Graph (Section 4.3)
- 3.4 Summary of Curve Sketching (Section 4.5)
- 3.5 Optimization Problems (Section 4.7)

## INTEGRATION

- 4.1 Antiderivatives and the Indefinite Integral (Section 4.9; Section 5.4)
- 4.2 The Definite Integral and Area
- 4.3 Area of a Region Between Two Curves