GRANDE PRAIRIE REGIONAL COLLEGE
Department of Science
MATHEMATICS 1130 A2
Fall 2008

Title :   **Elementary Calculus I**

Schedule : Lecture   A2   W   F   13:00 - 14:20   J202
              Seminar   AS1   R   14:30 - 16:20   J202
                     AS2   T   14:30 - 16:20   J202

Instructor : Thomas Kaip
              Office J212
              Phone 539 - 2963
              e-mail : kaip@gprc.ab.ca

Textbook :   i) Calculus, 8th Edition, Anton-Bivens-Davis

              Course is covered by Chapters 1 to 6.1 from i).

Grading :   Quizzes   15 %
            Assignments   10 %
            Mid-term Exam   25 %
            Final Exam   50 %

Calculators: No calculators allowed in Quizzes and Exams

Turn over . . .

Course Description

MA 1130 3 (3 - 2 - 0) UT 75 Hours

Pure Math 30 is a pre-requisite for this course.

(Credit will be granted for only one of MA 1130, MA 1140 or MA 1000.)

The following topics are covered in this course :

i) **Functions and their graphs**

ii) **Limit of a function, Calculating Limits using the Limit Laws, Limits of Trigonometric Functions**

iii) **Continuity**

iv) **Derivatives, Differentiation Formulas, Derivatives of Trigonometric Functions, Chain Rule, Implicit Differentiation, Higher Derivatives, Related Rates, Differentials, Linear and Quadratic Method, Newton's Method, Rates of Change in Natural and Social Sciences**

v) **Maximum and Minimum Values, Mean Value Theorem, Increasing and Decreasing Functions, First Derivative Test, Concavity and Points of Inflection, Second Derivative Test, Limits at Infinity, Horizontal and Vertical Asymptotes, Curve Sketching, Applied Maximum and Minimum Problems, Applications to Economics, Anti-derivatives**

vi) **Sigma Notation, Area, Definite Integral, Fundamental Theorem of Calculus, Substitution Rule, Areas between Curves.**