Title :   Elementary Calculus I

Schedule :   Lecture A2   M W F   9:00 a m - 9:50 a m   J226
             Seminar AS1   M   3:00 p m - 4:50 p m   J202
                     AS2   T   3:00 p m - 4:50 p m   J204

Instructor : Dr Eric Chislett
              Office C409
              Phone 539 - 2003
              e-mail : chislett@gprc.ab.ca

Textbook :   i) Single Variable Calculus, 3rd Edition, James Stewart
              Brooks/Cole Publishing Company
              ii) Student Solutions Manual, Volume One
              By James Stewart, Daniel Anderson, Daniel Drucker
              Brooks/Cole Publishing Company

              Course is covered by Chapters 1 to 5.1 from i).

Grading :   Quizzes/Assignments 15 %
              Worksheets in Seminars 10 %
              Mid-term Exam 25 %
              Final Exam 50 %

Exam Schedule : Mid-term Exam Thursday, October 15, 1998
                               12 : 30 p m - 1 : 30 p m

Final Exam as per Registrar's Schedule to be published in November 1998.

Students must write the Exams at the scheduled times.

Math 1130 - Elementary Calculus I

Course Guidelines

Pre-requisites: Math 30 is a pre-requisite for this course. The knowledge of the topics covered in Math 30 is hence assumed. It is usually very helpful for students to review briefly Math 30 material in the beginning of this course. It is wrong to expect the instructor to cover topics of Math 30. In case of difficulty in relation to topics already covered in Math 30 students are advised to first attempt to resolve the difficulty on their own, failing which the instructor may be consulted on one-to-one basis.

Attendance: It is imperative that students attend all the classes and seminars. It is usually hard and very time-consuming and sometimes even frustrating to cover the class material at home by oneself. Frequent absence from the classes seriously jeopardizes student's chances of successful completion of the course. Unexcused absence amounting to more than 10 % of total number of classes and seminars held may result in student getting barred from writing the final examination. One of students' responsibilities is to respect an instructor's right to enforce attendance requirement. (See the College Calendar - Students' Responsibilities)

In case of instances of unavoidable absence it is student's responsibility to keep track of material covered in missed classes and also of any announcements made. Students have to assume responsibility for course work when absent. (See College Calendar - Students' Responsibilities)

Attendance record will be maintained.

Lateness: It is one of students' responsibilities to arrive on time and remain for the duration of scheduled classes and related activities. (See College Calender - Students' Responsibilities)

Classroom deportment: Students talking among themselves or carrying on with an activity unrelated to the subject matter on hand while the class is in progress is inappropriate. Frequent occurrences of such disturbances will result in the instructor reporting the delinquent students' names to the Registrar's Office for action. It is students' responsibility "to respect an

instructor's right to appropriate classroom deportment. (Should a student be disruptive and/or disrespectful, the instructor has the right to take action to exclude the student from learning activities.)" (See College Calendar - Students' Responsibilities)

Calculators: Calculators are **not allowed** for quizzes and examinations.

Quizzes: Generally. quizzes will be administered on Wednesdays. Any departure from this standard policy will be announced in the class. Each quiz will be on the current topic usually covered by the seminar problem set.

Assignments: Assignments should be submitted on the due date before 5:00 pm .

Missing a quiz: If a student misses a quiz for a **legitimate** reason, the weight of that quiz will be shifted to the final examination. Quizzes missed for non-legitimate reasons will receive a mark of zero. Serious family problems, sickness supported by medical certificates, or college sponsored activities supported by appropriate documents will be regarded as legitimate reasons. Students are encouraged to talk to the instructor in case of missing a quiz.

Seminars: Seminars are in essence problem solving sessions and as such are a very important part of the course. The instructor is present in the seminar to help students on Seminar Problem Sets and on material covered in classes. Each instructor conducts seminars differently. An attendance record is maintained.

Experience of many years indicates that students who attend seminars, take the seminars seriously and complete the allotted practice usually do well in the course.

During the 1st hour of the seminar time students will work on the problem sets on which the weekly quizzes will be based. It is a good idea to work on these problem sets at home as much as possible reserving the seminar time to get clarification about the questions you could not do at home. This will ensure that you finish the problem set in time enabling you to prepare for the quizzes. Students will work on the worksheets during the remaining time of the seminar and hand-in the completed work for marking.

Homework: From time to time some home-work will be suggested from the text-book as different topics are covered. This home-work is for practice

only and need not be handed in.

Notes: Take appropriate notes in the class placing a special mark or a symbol by the side of a concept or a problem that is important or difficult to understand or remember. It helps students immensely to go over the day's notes at home preferably the same day when the matter is fresh in their mind. Going over the notes passively like a novel does not do much good for the learning process. Work out some or all of the problems worked out in the class while going over the class notes. Then attempt home-work questions.

If a student misses a class, it is important that he/she keeps track of material covered in the class. One way to do this is to get class-notes from a peer who takes notes with care. **Write the notes rather than xerox them. Kinesthetics of writing helps comprehension and retention.** Xeroxing of notes should be resorted to only when one has run into time-management problems due to circumstances beyond one's control.

Time management: It is a good idea to apportion time for your courses in your study schedule. Definitely reserve some time for fun and re-creation activities. You need **some** relaxation for effective studying. After making a good study schedule, one must **follow** it. If a time-management problem develops during the term, re-arrange the **available time** wisely and then once again **follow the revised plan knowing that this is the best one can do** to get out of trouble. If one makes a reasonably workable time schedule and follows it, there will be most likely no occasion to re-arrange time in panic. Using a planning diary for daily activities also helps.

Quizzes and Exam Preparation: Remember that Mathematics is a sequential subject. Weakness in earlier chapters is definitely going to hinder comprehension and mastery of later material. One cannot accumulate Mathematics work and expect to do well by putting in a lot of concentrated effort just before exam. Mathematics has to be learnt in sequence and master it in sequence while proceeding at a reasonable pace.

It is beneficial to go over difficult questions in Seminar Problem Set of the week and also class notes the day (night) before the quiz day. Special notations placed at important and difficult details in your notes will facilitate preparation for quizzes and exams. The review of notes, seminar sets, review sets and home-work should definitely involve selected problem solving.

Finally: Everything is learnt by doing it and Mathematics is no exception to this rule. **"Just do it"** would be a good way to learn anything and definitely Mathematics.

Relax. It is really not so hard. You just have to put in enough hard work. That's all.

Good luck.

MA 1130 Elementary Calculus I 3 (3 - 2 - 0).

Math 30 is a pre-requisite for this course.

The following topics are covered in this course :

i)   Functions and their graphs

ii) Limit of a function, Calculating Limits using the Limit Laws, Infinite Limits, Limits at Infinity, Limits of Trigonometric Functions

iii) Continuity, Intermediate Value Theorem

iv) Derivatives, Differentiation Formulas, Rules of Differentiation (Sum, Difference, Product and Quotient Rules), 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, 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.