

GRANDE PRAIRIE REGIONAL COLLEGE

DEPARTMENT OF SCIENCE
COURSE OUTLINE

MATHEMATICS 1130 B2

Fall SEMESTER 1993 - 94

TITLE: ELEMENTARY CALCULUS I

SCHEDULE: Class:
Monday, Wednesday, Friday 10:00 - 10:50 J202

Seminar:
BS1 Tuesday 3:00 - 4:50 J202
BS2 Wednesday 3:00 - 4:50 J201

INSTRUCTOR: Thomas Kaip
OFFICE: J 212
TELEPHONE: 539 - 2963
CONSULTATIONS: ANY TIME THAT IS CONVENIENT TO BOTH YOU AND ME

TEXT: i) Howard Anton; Calculus with Analytic Geometry
(Fourth Edition/Brief Edition)

ii) Albert Herr; Student's solution manual to
accompany (i)

COMPOSITION OF THE COURSE GRADE:

Final exam	35%
Term Test-1	15%
Term test-2	20%
Quizzes	20%
Assignments	10%

SCHEDULE OF EXAMINATIONS:

Term test 1 : Monday, October 18, 1993 (Tentative)

Term test 2 : Monday, November 22, 1993 (Tentative)

Final Examination : Will be scheduled by Registrar's
Office in December 1993.

**Quizzes, term tests and the final examination must
be written at scheduled times.**

Quizzes: Generally, quizzes will be administered on Fridays. This schedule has to be changed sometimes depending on the progress of the class. The instructor will let the class know of any such change at the appropriate time.

Assignments: There will be 3 to 5 assignments. Assignment Problem Sets will be made available to students at appropriate times. Assignments should be legible and neatly done. Assignments must be submitted on time. **Late assignments will not be accepted.**

Seminars: Seminars 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 the class.

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

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.

Attendance: If a student misses a particular class it is their responsibility to know the material covered and announcements made.

Lateness: In order to avoid disruption, students who are late will not be permitted to enter the class.

Calculators: Calculators are not allowed in quizzes, term tests and examinations.

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. Actually work out some or all of the problems completed during the class and then attempt other home-work questions.

If you miss a class, it is important that you keep 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 recreational 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 reasonable and workable time schedule and follows it, then there will most likely be 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 hinders 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 has to be mastered in sequence while proceeding at a reasonable pace.

It is beneficial to go over 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, assignments and homework should also involve selected problem solving.

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

Good luck.

MATHEMATICS 1130/1140

ELEMENTARY CALCULUS I	3 - 2	MA1130
	3 - 1.5	MA1140

Prerequisite

Students with Math 30 and Math 31 background take MA 1140 while students with Math 30 only background take MA 1130.

This course is listed among the requirements in honours programs in almost all Science subjects. It is a requirement for many specialization programs in Science subjects including Mathematics, Physics, Geology, Computing Science and Chemistry. It is a requirement in the Agriculture, Forestry, Pre-veterinary and Pre-medicine programs. It is also required in the secondary Education program (Mathematics Specialization), and in the Business Administration and Commerce program.

Course Contents

- Review of inequalities, lines and functions
- Limits, limit theorems, continuity (includes trigonometric limits)
- The definition of the derivative, rules for finding derivatives
- Differentials, trigonometric differentiation
- Implicit differentiation, higher derivatives
- Applications of the derivative, maxima and minima, rates, curve sketching
- Rolle's Theorem and the Mean Value Theorem for derivatives
- Antiderivatives, area under the curve, definition of definite integral
- The fundamental Theorem of Calculus, calculations of simple integrals, method of substitution
- Numerical integration, trigonometric integration
- Application of the definite integral to area