

MATHEMATICS 2140 A2
Fall Semester 1994-95

TITLE: INTERMEDIATE CALCULUS I

SCHEDULE: Class: Mon Wed Fri 12:00 noon - 12:50 pm J204
Seminar: Tuesday 5:00 pm - 5:50 pm J227

INSTRUCTOR: Dr. Subhash Karnik
Office: J206
Extension: 2093

TEXT: i) James Stewart; Calculus (Second Edition)
ii) Barbara Frank; Student Solution Manual Volume II
for (i) (Second Edition)

MARKING: Final Examination 35%
Term test 1 20%
Term test 2 20%
Quizzes 15%
Assignments 10%

SCHEDULE OF EXAMINATIONS:

Term test 1 : During the mid-term exam week starting Monday, October 17, 1994. The exact date to be fixed in consultation with the class.

Term test 2 : During the week starting Monday, November 21, 1994. The exact date to be fixed in consultation with the class.

Final Examination : As will be scheduled by Registrar's Office in December 1994.

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

Attendance: In case of instances of unavoidable absence it is student's responsibility to keep track of material covered in the missed classes as also of any announcements made. Attendance record will be maintained.

Lateness: In order to avoid disruption, students are requested not to be late for classes.

Food and drink: LARGE meals are not allowed during the class time. A sandwich for survival will not be frowned at.

Quizzes: Generally, quizzes will be administered in the seminar time. Each quiz will be on the current topic usually covered by the seminar problem set.

Assignments: There will be 3 or 4 major assignments. These assignments will be harder than seminars and quizzes and geared towards getting the student ready for the term tests and final examination. Assignment Problem Set will be made available to students at appropriate time. Sometimes, a quiz will be set based on the assignment problems. The instructor will advise the class in advance when such a quiz is to be administered. Students are not required to hand in the completed assignment whenever such an assignment quiz has to be written. Marks for such an assignment quiz will form a part of the total assignment mark.

Assignments should be legible and neatly done. Carelessly and shabbily written assignments risk a penalty of upto 10% of the total mark. If an assignment submitted is in extra-ordinarily bad shape, the instructor may refuse to accept it. Assignments have to be submitted on time. Late assignments will not be accepted.

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. Students can also receive help on their assignments during the seminar time. 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.

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 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 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 as 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, assignments and home-work should also 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.

Good Luck.

12/96

MATHEMATICS 2140
INTERMEDIATE CALCULUS I

MATH 2140 Intermediate Calculus I 3 (3-0-1)

Prerequisite: Math 1150 or equivalent. This course may not be taken for credit if credit has already been obtained in Math 209 or Math 217.

Detailed Description :

Infinite sequences. Convergence and divergence of infinite series. Positive term series. Alternating series. Absolute convergence. Power series. Taylor and Maclaurin series.

Plane curves. Tangent lines to curves. Polar coordinate systems. Polar equations of conics. Areas in polar coordinates. Lengths of curves. Surfaces of revolution.

Vectors in two and three dimensions. Vector product. Lines in space. Planes. Cylinders and surfaces of revolution. Quadric surfaces. Cylindrical and spherical co-ordinates.

Functions of several variables. Limits and continuity. Partial derivatives. Increments and differentials. The chain rule. Directional derivatives. Tangent planes and normal lines to surfaces. Extrema of functions of several variables. Lagrange multipliers.