

*Instructor's Syllabus***MATH 1310****Graphing Calculators Required in all Sections****Course Description:**

MATH 1310. Calculus and Analytic Geometry I (5) Differential and Integral Calculus including applications. MATH 1310-2320-2330/2350 is a traditional calculus sequence for well-prepared students and is prerequisite for all advanced mathematics and statistics courses. Prerequisite: (1) two years of high school algebra, one year of geometry, one-half year trigonometry, ACT math score of 24 or higher, AND satisfactory score on the departmental placement test; or (2) grade of C or higher in MATH 1280, 1290, or 1300.

General information:

Math 1310 is required for all students in the Bachelor of Science degree program, and satisfies the mathematics requirement for students in the College of Business as well as other programs. Many students in this course are entering freshmen and are subject to a variety of adjustment problems. They often fail to seek help or don't know where to turn for it so please be alert to their problems and willing to counsel them on occasion. Be firm about enforcing prerequisites. Even students with C's in MATH 1300 or 1280 have trouble passing MATH 1310.

The textbook and course description:

Smith and Minton, *Calculus, Second Edition*, McGraw-Hill, 2002. (The rest of the book is used for MATH 2320 and 2330.)

The topics covered are differential calculus of functions of one variable, integral calculus through substitution, and applications of both. Trigonometric functions and an informal treatment of exponential functions are included. The focus should be on the fundamental ideas of the calculus, techniques of differentiation, techniques of integration, applications and geometric interpretations of the calculus. Don't get bogged down in a lengthy review of prerequisite topics. Use your best judgment regarding topics to be skimmed or omitted (omit 1.5-1.6, and possibly 5.4-5.7) and keep your eye on the calendar. Allowing three additional days for testing, approximate times for each chapter are given below. There are 74 days in the semester at 5 days per week.

		Pages	Days
Chapter 0	Preliminaries	80	5
Chapter 1	Limits and Continuity (omit 1.5, 1.6)	44	9
Chapter 2	Differentiation	91	16
Chapter 3	Applications of Differentiation	80	16
Chapter 4	Integration	80	14
Chapter 5	Applications of The Definite Integral	77	11

A graphing calculator is required! TI-83PLUS or TI-84 is recommended for purchase, but you should tolerate other models that students might already have. The text is compatible with a TI-81-82-83 or 85-86. If a student has another model or brand and knows how to use it then there is no need to purchase a TI, but if they own a different calculator and don't know how to use it then they are expected to learn its use on their own or to purchase a TI-83. If they don't have a graphing calculator tell them to buy a TI-

83. Only rare individuals can cope with a TI-85-86. You are not expected to provide instruction for calculators other than the TI-81-83 and to do so would take an unwarranted amount of class time.

The text illustrates some uses of the graphics calculator and gives problems and examples which make it easier for both the first time instructor and the student. You should use your best judgment in adapting these ideas to your classes and may choose to omit some of the suggested uses. Use what you feel comfortable with on your first pass through the calculus and keep an open mind.

Equipment and other support available. The Department has overhead projector pads that can be checked out. You won't need to use the projector very often after the first couple of class days, if at all.

Suggestions for first time users. Use the brief review section at the beginning to introduce students to the graphic capabilities of the TI-8x. Take a very informal approach and motivate limits and their algebraic properties numerically and graphically with the calculator (avoid epsilon delta arguments). Assume the usual properties of limits and give a more formal development of the concepts of continuity and derivatives.

In general, you should view the calculator primarily as a tool for exploring or understanding the calculus and secondarily as a computational device. Use of the calculator should have little or no change in your expectations on exams. If you are requiring calculators for the first time be conservative until you develop a sense of how it affects students performance. Direct testing on the use of a calculator is questionable.