

Course Title: Exploring Concepts in Calculus using the graphing calculator

Section	2103	2104
Time	Mon 9:00	Mon 10:00
Room	Ketchum 320	Ketchum 212

Required Calculator: Texas Instruments TI-89

Text: There is no required text. However, you are required to download labs from the **Math 163** page on the web site www.mathbykoehler.com. I also expect that you will familiarize yourself with the lab before coming to class.

Instructor: Robert Koehler

Web Site: <http://www.mathbykoehler.com>

email: rlk@mathbykoehler.com
do NOT use my campus email!

Office: 309 Bishop Hall (878-6439)

Math Office: 317 Bishop (878-5621)

Office Hours: Mon: 11:00 – 12:00; Wed: 9:00 – 12:00; Fri: 10:00 – 11:00 by arrangement
Other times by arrangement or if I am available in my office. I am NOT on campus Tues. & Thurs.

Course Outline: We will investigate concepts of Calculus I using the graphing calculator. The course is composed of a set of activities which will teach you how to use the TI-89, and use it to investigate some topics from Math 161 which are visual in nature and are better studied using available the available technology. Topics for each lab are listed on the Math 163 Assignment page.

General philosophy: The activities are designed to help you learn calculus, and hopefully even enjoy the process. I will do all I can to make this a reality. But you must do your part.

From your earlier experiences in mathematics in college and high school, you know how important it is to keep up with course work. The most frequent problem students encounter in Calculus at this level is that the instructor moves too quickly. You must regularly spend the necessary time to keep up with the material, and not let yourself fall behind, even a little. Be sure to take advantage of the office hours available and the tutoring in Academic Skills. The lab assignments are designed to give you experiences that will help you to master concepts of Calculus I.

Weekly Preparation: As stated above, you are expected to download labs at least several days in advance of the lab class, and to familiarize yourself so that the class activities may be expedited. There is a lot to be covered each week.

There will be a lab assignment each week. It will be graded and returned to you. Each lab assignment will be worth 10 points. Assignments are available on the web site. As there is no text for the course, I expect that you will download each lab from the assignment page of the site www.mathbykoehler.com, in order that you have it to go over before class, and for reference in class. Labs will normally be due at the beginning of the second lab class after they are assigned. You will have the opportunity to ask questions about the lab at the beginning of the intervening class..

Labs on the web site are in PDF format, so you will need Adobe Reader to access them. This is a FREE DOWNLOAD, and you may navigate to the Adobe Site by clicking on the "Get Adobe Acrobat Reader" icon on the assignment page.

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Late Labs: Labs must be submitted in class the day they are due, even if you were late or absent the day of the lab or the intervening lab day. If turned in at any time after that class, (maximum of one week, only!), they will be subject to a deduction of 2 points.

Required Calculator: You will be permitted to use a graphing calculator (except rarely when otherwise directed) in class and on assignments.

Because the study of calculus involves some mathematical computation that can at times be quite involved, the use of a calculator will enable us to focus on understanding the basic concepts and uses of the calculus, rather than on the computations.

Calculus concepts are frequently best thought of in a visual manner, so use of the graphing calculator will assist us in the investigation of these new concepts. Without the use of the calculator technology, we would be often limited to artificially created problems whose given numeric values would simplify the computations necessary to their solutions. With the graphing calculator, this artificial nature of problems will be avoided. In turn, it will enable us to study more realistic problems.

We in the math department realize that calculator represents a significant financial investment on your part. However, please realize that the calculator will be the same for Calculus I, II, and III, so the cost will be amortized over a longer period than usual. The TI-89 can also be used in other higher-level math courses. Indeed, its use will be assumed in many of those courses.

Attendance: We meet only once a week. Attendance will be taken at each class. There will be a 25 point attendance grade. Three points will be deducted from the 25 points for each absence beyond one. Four absences would give an attendance grade of $25 - 3(4-1) = 16$. $16/25 = 64\%$. Excessive tardiness to class may result in deduction of up to 2 points per tardiness. I rarely allow excused absences, and then only with immediate written documentation and personal request. Validity of reasons for absence will be determined on a case-by-case basis. The one allowed absence is intended for an emergency, not as a free “cut”.

Study groups: You will find working with a regular group can be of great help. I urge you – early in the semester – to find a compatible group to work with, and to do so on a regular basis.

Grading Policy: There will be a grade sheet published occasionally to let you know where you stand during the course of the semester.

Lab assignments (12 @ 10 pts each – the low lab is dropped)	= 120 pts.
Attendance	= <u>25 pts</u>
TOTAL	= 145 pts

Your Course Grade is based on your total points. In this example: 145. So divide your total points by 145 to get a per cent. The grade cutoffs are as follows:

A	93 - 100
A-	90 - 92
B+	87 - 89
B	83 - 86
B-	80 - 82
C+	77 - 79
C	73 - 76
C-	70 - 72
D+	68 - 69
D	65 - 67
E	0 - 59

Intangibles such as class participation, evidence of extraordinary effort, etc., can have a positive effect on your grade, as well.

Extra Credit: Extra Credit points will be added directly to your lab total.