

Course Description and Requirements

Time:	8:00 am M-W-F Ketchum 218 9:00 am Fri. Ketchum 300
Required Calculator:	TI-89™ (for Math 161 AND Math 163)
Text:	<u>Calculus</u> (5th ed.), James Stewart, Brooks/Cole, 2003
Instructor:	Robert Koehler
Web Page:	http://www.mathbykoehler.com
email:	rlk@mathbykoehler.com DO <u>NOT</u> USE MY CAMPUS EMAIL!!!
Office:	309 Bishop Hall (878-6439)
Office Hours:	Mon. 11:00 – 12:00 Wed: 9:00 - 12:00 Fri: 10:00 - 11:00 (by arrangement) Other times also by appointment I am NOT on campus Tues. or Thurs.

◆ **Course Outline:**

- Brief Review of Algebra Skills
- Functions, Limits and Continuity: domain, range, operations on functions; intuitive and formal approaches to limits and computational techniques and theorems; continuity
- The derivative: Tangent lines and instantaneous velocity; differentiation techniques and theorems; derivatives of trigonometric functions; implicit differentiation
- Applications of the derivative: Related rates; increasing and decreasing functions; local and absolute extremes; concavity and points of inflection; applications; Rolle's Theorem and the Mean Value Theorem; Newton's Method; L'Hospital's Rule
- Antidifferentiation: Definition; initial value problems; the indefinite integral; techniques and applications; area under a curve

◆ **General philosophy:** The activities that I have planned for this course 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 previous math courses, 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 seems to move too quickly. While we do move quickly - more so than in high school - you must realize that there is a great deal of material to cover in the course, and we meet only three days a week, rather than the five days you may be accustomed to from high school. 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, the student assistant, and tutoring in Academic Skills. The frequent quizzes and collected assignments are also intended to keep you abreast of the material we cover, to master it in a timely manner, and give you a good idea of your progress. I will return your work to you almost always the next class day.

It is important to get in for help as soon as you realize you need it. We can often take care of difficulties quickly and painlessly if we catch them right away. If you wish to come in any early morning before class (7:30 in Ketchum 218), please check with me the previous class day.

◆ **Required Calculator:** You will be permitted to use a graphing calculator in class, on assignments, and most tests and quizzes. I will be using the TI-89 in class and lab demonstrations.

We in the math department realize that the book and calculator represent a significant financial investment on your part. However, please realize that the text and 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 and others. Indeed, its use will be assumed in many of those math courses.

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 computation. On the other hand, since there are some calculus skills you must be able to do by hand, there will be times, both in class and on tests/quizzes, when use of the calculator will not be permitted.

Calculus concepts are frequently best thought of in a visual manner, so use of the graphing calculator will assist us significantly 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 can be avoided.

◆ **Attendance:** Mathematics is, as you are doubtlessly aware, a discipline that builds on what was done previously. Calculus is no exception to this rule. Therefore, any class absence for whatever reason can be deleterious to your progress. Attendance will be taken every class. You are expected you to be here every day, including the days after tests and quizzes. If you are absent, you have the responsibility of making up all work that you missed. Be on time. There will be a 50 point attendance grade. For each absence in excess of two (2), 3 points will be deducted from the attendance grade. I make every attempt to start on time so that the lesson can be completed and end on time.

◆ **Recitation:** On Fridays, we will spend the 8:00 am hour in small groups working on problems covering recent work. The 9:00 am hour will be the regular class. This will allow us to clear up most difficulties before moving on to more new material that day. You may be asked to put problems on the board. Extra credit may be given for doing so.

◆ **Makeups:** There are no makeup tests or quizzes without written verification of the legitimate reason for absence, and these will be evaluated on a case-by-case basis. You will have one week from the day of the quiz/test to make it up. You may have a maximum of one makeup test/quiz during the semester. It must be taken during an office hour.

◆ **Daily Preparation:** (study and homework problems) There will be daily assignments given to aid in your mastery of the topics we cover. Assignments will be collected each Monday, following the Friday "recitation hour." This will give you time to do necessary corrections. They will be graded. Habitually late assignments will be subject to up to a 20% deduction. As I will normally return papers to you at the class after they are handed in, I will accept no late homework more than one class day after it is due (except in extreme circumstances and with my approval on a case-by-case basis). You should expect to spend a minimum of 6 hours for work in this course, outside of class, every week. There will also be additional longer-term assignments.

I will regularly list assignments and quiz/test dates on my web page: www.mathbykoehler.com. Information for days that class has not yet met is tentative. Check back for updates on a regular basis. You may also navigate to this site through the math department/staff page on the college web site.

◆ **Study groups:** I strongly urge you to find 2 - 3 other students in the class who have a common free time during the day when you can get together on a regular basis to study and work on homework. Students have consistently found that study groups can be a great help, as can taking advantage of the office hours provided. There is a conference room in the Math department that is frequently available.

◆ **Point Rebate:** I will allow you the opportunity to earn a point rebate of up to 50% of the points you miss on tests and quizzes except for the final examination. I will discuss requirements for this in class on the day I return the first quiz. Your completion of the point rebate is optional. But you can only gain from it. You may also go to the [Math 161 rebate page](#) to see how this works.

◆ **Grading Policy:** There will be a grade sheet published occasionally to let you know where you stand during the course of the semester. Based on 3 tests, 6 quizzes, homework, and the final exam, points will be awarded as follows:

Hour Tests	3 @ 100 pts each	= 300
Quizzes:	5 of 6 @ 30 pts each (low quiz grade dropped)	= 150
Homework	13 @ 10 pts each (low homework grade dropped)	= 120
Attendance	50 pts	= 50
Final Exam	30 pts take-home; 120 in class	<u>= 150</u>
Total		= 770

Your Course Grade is based on total points. In this example: 770. Divide your total points by 770 to get a per cent. Intangibles such as class participation may also have an effect on your grade. Grade cutoffs are as follows:

93 - 100	A
90 - 92	A-
87 - 89	B+
83 - 86	B
80 - 82	B-
77 - 79	C+
73 - 76	C
70 - 72	C-
68 - 69	D+
65 - 67	D
0 - 64	E

◆ **Extra Credit:** You may earn extra points toward an extra credit grade by putting particular problems on the board, or by doing specified extra credit problems on a homework assignment. The extra credit points you earn will be added to both your total points and to the total possible points (770 in the example). These two numbers are then divided to get your average. For example, say you get 689 on normal grades. $689/770 = 89\%$. If you earn 86 extra credit points, 86 is added to both the 689 and the 770, giving you an average of $775 / 856 = 91\%$. Extra credit points are NOT added directly to any test, quiz, or homework.