

**Class Syllabus**  
**MTH 142, Calculus I**

Spring 2008, Sam Houston State University  
Section 01, LDB 400, 8 AM, MoTuWeTh

**Dr. Ken W. Smith**

**An exciting course!**

Most of the essential concepts of **algebra** and **geometry** were known to the Greeks over two thousand years ago and were later modified by Arab and Chinese civilizations over a thousand years ago. *That* material is the typical subject of a **high school** math curriculum. But the concepts of **calculus**, appearing in the seventeenth century, revolutionized society and were the foundations for the modern industrial and technological revolutions.

This course will examine mathematical concepts which developed during the 1600's and 1700's; concepts which *created* modern science and *changed* the world! As your instructor, I will attempt to show you how useful (and exciting) this material is. We will focus on understanding and applying the major concepts of **differential calculus** and **integral calculus**.

**No magic!**

We will stress the *understanding* of the class material. We will avoid “magic”, that is, we will avoid mechanical memorized formulae. There is very little to “memorize” in this class – if you *understand* the concepts, you do *not* need to *memorize*.

**Basic introduction to differential calculus**

This course will introduce you to the basics of differential calculus, including limits, continuity, and the derivative. We will develop techniques for differentiation of algebraic, logarithmic, exponential and trigonometric functions. We will explore applications of the derivative. Finally, we will develop the anti-derivative (the integral.)

**Course objectives**

Students completing this course will demonstrate mastery of the following concepts:

- a. limits,
- b. continuity,
- c. the definition of the derivative, including its geometric interpretation,
- d. methods of differentiation of elementary functions,
- e. applications of the derivative to optimization problems,
- f. the derivative as rate of change,
- g. the integral as the “anti-derivative.”

Here are details about the mechanics of this course.

**Textbook:** *Calculus* (Early Transcendentals), by Thomas, 11<sup>th</sup> edition, 2006.

(We will cover chapters 2 through 5. Chapter 1 and Appendix B3 should be reviewed.)

**Prerequisites:** MTH 163 (Plane trigonometry) *or* the equivalent.

A *good* understanding of both algebra and trigonometry is essential for this course.

### Contact information

My e-mail address is [KenWSmith@shsu.edu](mailto:KenWSmith@shsu.edu). Please feel free to contact me by email. My office is LDB 420A, 936-294-1563.

### Office Hours

My formal office hours are: **immediately after class, MoTuWeTh** and **at 9 on Friday**. (You may drop into LDB 420A during those times. If these hours are inconvenient, feel free to call -1563 and make an appointment for another time.)

We will use the Blackboard system but the primary syllabus and course notes are also on my webpage at <http://www.shsu.edu/~kws006>. (On my webpage, follow the calculus link.)

### Class expectations

Please treat this class as you would other *professional* obligations. If you are unable to attend class, I expect you to contact me as soon as possible (by email, preferably) and let me know you will absent. (Usually this means you will notify me *before* you miss class.) If you notify me before you miss class, I will make a note of that in my gradebook (with an *N*, for “notified”.)

This class meets four days a week: Monday through Thursday. *If you cannot attend all four days, you should not be in this course.*

Further guidelines for classroom conduct (including absences on religious holy days) are available at <http://www.shsu.edu/syllabus/>.

### Exercises and Assignments

There will be **daily reading expectations**, along with **daily exercises** to work. The daily exercises are usually *not* collected, but it is assumed that you have worked most of them before the next class. You should bring this work to class. For most students, these readings require *about* 90 minutes of work between class sessions.

You should bring the daily homework to class each day, along with your calculus textbook.

There is a **weekly assignment** which *is* collected. The weekly assignments are intended to deepen your understanding of the material. *The weekly assignments are critical to the understanding of the course material.*

On the weekly assignment, the clarity and presentation of your work is *very* important. Each assignment problem should be done *on a separate sheet*, with work clearly shown and *English sentences explaining the process*. Assume the audience for your writing is a colleague in the class who does not understand the recent material. Your writing should communicate the techniques involved in the problem. Each assignment problem is worth five points. By the end of the semester, there will be at least 30 assignment problems, worth more than 150 points (that is, more than 1 ½ exams.)

On the assignments I will grade for both accuracy and style. You may receive or lose **style points** (+/- 2.5 points). Both neatness and correct English (grammar and exposition) are considered in evaluating style points.

Weekly assignments are designed to develop understanding. They may require a fair amount of thinking and “meditating” on the subject. Please set aside enough time to do these assignments well! (I will *not* answer questions on the assignments on the day they are due. However, I will set aside office hour time on Friday morning 9-9:30, to discuss upcoming assignment problems and will be available at other times on Friday for this.)

### **Quizzes**

There will be a short quiz every day (or *almost* every day.) Most quizzes are 5-points. Occasionally there will be a “double-quiz”, worth ten points. The “double-quizzes” will be announced. (The first double-quiz is **Monday, January 28.**) There will be at least 44 quizzes.

I do not generally allow make-ups on quizzes or other work. *If* you have missed four quizzes, with an *N* grade, and *then* have an emergency, such as a long illness, I am willing to discuss a make-up on the *additional* missed quizzes.

### **Exams**

There is one mini-exam (worth 50 points) and four regular exams. The mini-exam is on Thursday, **January 24**. The mini-exam will cover prerequisite material for this course: linear functions, trigonometry, exponential functions, inverse functions and logarithms. The Mini-Exam is a “Gateway” exam. *Students scoring less than 60 percent on that mini-exam will not be allowed to continue in the course until they have raised that exam score.* (A make-up date, for students scoring below 60% on this Mini-Exam will be on **Friday, February 1** at 8 AM in LDB 418.)

The first three regular exams are worth 100 points each and will be on the following dates: Thursday, **February 7**, Wednesday-Thursday, **March 19-20**, and Thursday, **April 24**. The fourth exam is the final exam. It is on **Monday, May 12**, 8 AM – 10:30 AM. It is worth 100 to 300 points. (It is worth 300 points if your final exam improves your semester grade, 100 points if it does not.)

### **Miscellanea**

Calculators may be allowed on most homework and quizzes. Some quizzes and many exam problems will *not* allow calculators. (Please read the instructions!) *Calculators will **not** be allowed on the Final Exam.*

I will occasionally bring a TI-83 or TI-84 to the classroom. You should have access to a graphing calculator; it need not be a TI-83 or TI-84, but should be a graphing calculator without a Computer Algebra System (CAS).

On assignments, quizzes and exams, your work and your communication of your work are important.

The last date to drop the course without a grade of *F* is **Friday, March 7**.

### **Grades**

Grades are based on percentages, the ratio of your total points to the total points of a fictitious student named *Perfect*. If your point totals are at least 90% of Perfect's totals, then you receive an A. If you obtain at least 80% of Perfect's total, you get at least a B. Similarly, 70% and up is C. 65% and up is a D. A grade below 65% is failing (F).

Ms. Perfect will miss every eleventh quiz. This allows a student with one or two legitimate absences to "catch up" on their grades.

There will be some opportunities to get more than "Perfect" on assignments, quizzes and exams. *Students who have a grade higher than Perfect's on the last day of class will be excused from the final exam.*

### **Collaboration & Plagiarism**

On assignments, homework, or "take home" quizzes, it is acceptable to receive tutoring from the instructor. You are also *encouraged* to discuss the problems with other students. However, anything you turn in must be in *your* own words, with *your* understanding of the material. To turn in material that is written in someone else's words is *plagiarism*.

Of course, on in-class exams or quizzes, all the work you turn in must be your own, without any aid from anyone else. Giving or receiving aid on in-class quizzes and exams will be considered *plagiarism* ("cheating.")

In this class, the penalties for plagiarism will include *at least* a zero grade on the submitted material and *most likely* a failing (F) grade in the course with a referral to a disciplinary committee. (Further details are at <http://www.shsu.edu/syllabus/>.)

### **Writing**

Mathematicians should write well. Please don't abbreviate (unless we have agreed on some common abbreviations). Please write with good grammar, in complete sentences. Spell correctly. Write so that others will find your work easy to read.

I will try to help you improve your math writing.

### **Final comment**

Please feel free to talk to me. I want you to enjoy this class *and* to do well!

Dr. Ken W. Smith ([kenwsmith@shsu.edu](mailto:kenwsmith@shsu.edu))  
January 15, 2008

PS. At the end of this file is a copy of quiz 3, which is over this syllabus! ☺

### Quiz 3

Tuesday, January 22 (over the syllabus)

1. According to the MTH 142 syllabus, what should a student do if he/she is going to miss class?
2. What should a student do if he/she has questions and cannot make Dr. Smith's office hours?
3. List at least two things which are important on the weekly assignments.
4. When should a student begin working on the weekly assignment?
5. What are style points?
6. The collected written assignments will be worth at least \_\_\_\_\_ exams. (Fill in the blank.)
7. How many points did Perfect get on this quiz?