

# Differential Calculus

Summer 2012

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## Course Websites

This course will have *two* websites:

- Blackboard, accessible from <http://courses.utexas.edu/>, and
- Quest, accessible from <http://quest.cns.utexas.edu/>.

## Textbook

Calculus, Early Transcendentals (Seventh Edition) by James Stewart

## Course Overview

M408K is one of two first-year calculus courses. It is directed at students in the natural and social sciences and at engineering students. In comparison with M408C, it covers fewer chapters of the text.

Success in this course will depend on your willingness to engage with mathematics in ways more meaningful than rote memorization. The structure of each class will change depending on the subject. On some days, there will be lecture; on some days the majority of class time will be spent in groups solving problems and discussing questions posed for and by the class. My hope for this class is that we actually have a meaningful time learning, discussing, and making sense of calculus *together*. My goal is not to produce passive learners who memorize well.

On many occasions, you will be asked to solve problems that your teachers have not already solved for you. The reasoning for this is simple: (a) we want you to think; and (b) real-life problems are not already solved for you! We understand that this is harder, and you should understand it going in.

The syllabus for M 408K includes most of the basic topics in the theory of functions of a real variable: algebraic, trigonometric, logarithmic and exponential functions and their limits, continuity, derivatives, maxima and minima, as well as definite integrals and the Fundamental Theorem of Calculus.

## **Prerequisites**

The prerequisite for the class is the “minimum required score” on the ALEKS exam. If you do not meet this prerequisite, you will be dropped from the course in the first week of school.

## **Grade Distribution**

Participation, 10%

Homework, 10%

Quizzes, 20%

Midterm Exams, 30%

Final Exam, 30%

The plus/minus option for grading will be used in this class.

If a certain grade is important to you, whether it be a C- or an A, I recommend you work for that grade BEFORE the final exam! The grade you get is the grade you earn. It is your responsibility to earn the grade you want or need. The help we can provide with regard to your grade is more effective the sooner it is requested. Nothing can be done to improve your grade once you have taken the final exam.

## **Homeworks, Quizzes, and Exams**

**Homework:** Online homework will be assigned from each section of the text using the UT online homework service, Quest; all answers and grades will be returned online also using Quest. Assignments will be posted before the material is covered during lecture and will be due at 9:59pm on the night before the next lecture.

Homework is all submitted online, so the issue of late homework does not exist for our class. (If you'd like, you can interpret the previous sentence as ‘No late homework’.)

**Quizzes:** In each discussion section, there will be a short quiz on the material covered in the homework and lectures. Calculators are not allowed during quizzes.

**Exams:** Calculators are not allowed during exams. Some of the questions on each exam will be multiple choice, like problems on the QUEST homework system, and some will require that you show your work. These exams will be given during discussion. There will be no makeup exams.

The lowest exam grade will be dropped. The lowest quiz grade will be dropped. The two lowest homework grades will be dropped.

## **Note on Participation**

This portion of your grade is based on your attempt at learning the material, your contribution to a healthy learning environment in the classroom, and your willingness to discuss and to make changes in your learning habits once mistakes are made. For instance, if your grade is low, I will discuss your situation with you and together we will come up with possible changes you can make. If you make no changes at all, then not only will your next exam grade be low, but your participation grade will suffer, too. My objective here is that you learn from your mistakes! Often, we don't improve until we make a mistake.

## **Students with Disabilities**

UT provides upon request appropriate academic accommodations for qualified students with disabilities. For more information, contact the Office of the Dean of Students at 471- 6259, 471-6441 TTY.

## **Tutoring - Sanger and Math Department**

The Sanger Learning Center offers tutoring services to precalculus students. This includes “Drop-In Tutoring”: a free, walk-in study environment supported by mathematics tutors. Additionally, they offer appointment tutoring: one-on-one tutoring sessions for a charge of around \$13.50 per hour. For more information, see: <http://lifelearning.utexas.edu/>. Please note that while Sanger is a useful resource, the tutors there are not as familiar with our presentation and expectations as we are. (If Sanger does not suit you, the math department keeps a list of math graduate students who also tutor, but whose rates vary.)

## **Tentative Course Schedule**

- Review: Inverses, exponentials, and logarithms.
  - Friday, June 1. Sections 1.5,1.6.
- Limits and derivatives.
  - Monday, June 4. Sections 2.1,2.2.
  - Wednesday, June 6. Sections 2.3,2.5.
  - Friday, June 8. Sections 2.6,2.7.
  - Monday, June 11. Sections 2.8,3.1.
  - Tuesday, June 12. Exam 1.
- Derivatives.
  - Wednesday, June 13. Sections 3.2,3.3.
  - Friday, June 15. Sections 3.4,3.5.
  - Monday, June 18. Sections 3.6,3.9.
  - Wednesday, June 20. Sections 3.10,4.1.
  - Thursday, June 21. Exam 2.
- Applications of differentiation.
  - Friday, June 22. Sections 4.2,4.3.
  - Monday, June 25. Sections 4.4,4.5.
  - Wednesday, June 27. Sections 4.7,4.9.
  - Thursday, June 28. Exam 3.
- Integrals and the Fundamental Theorem of Calculus.
  - Friday, June 29. Sections 5.1,5.2.
  - Monday, July 2. Section 5.3.
  - Friday, July 6. Final Exam.

## **One more thing . . .**

I am committed to doing everything I can to help you make the most of this course. If you have questions, comments, or suggestions regarding our class, please do not hesitate to contact me.