Syllabus: MTH 233 Calculus I

Fall 2011, Sections 002/003

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Class Times & Place: Sec 002 – MWF 10-10:50, Math 358
Sec 003 – TR 11-12:15, Math 213
Lab Times & Place: Sec 002 – R 12:30-1:45, Math 358
Sec 003 - W 1-2:15, Math 359
Office Hours: Mon 8-10, 11-12, 1-2; Tues 1-2;
Wed 8-10; Thurs 2-3, Fri 9-10, 11-12

Required Materials
Students may also use a non-programmable, non-graphing calculator with no permanent memory.

Course Description
This course introduces calculus – the study of motion and change. It covers motivation for calculus, the formalism of calculus, and several applications of calculus. Specifically: limits, continuity, differential calculus of algebraic and transcendental functions with applications, basic antidifferentiation with substitution, definite integrals.

Student Learning Outcomes
At the end of this course, successful students will be able to:
- Find limits using graphs, algebraic techniques, and L'Hopital's Rule.
- Demonstrate an understanding of the connection between limits and asymptotic behavior in functions.
- Recognize and construct continuous functions.
- Connect the definitions of the derivative and definite integral to their geometric interpretations and applications.
- Find derivatives and antiderivatives of algebraic and transcendental functions, including compositions of functions.
- Use implicit differentiation to solve related rates problems and to determine derivative rules for inverse transcendental functions.
- Use information revealed by limits and derivatives to sketch graphs of functions and find extreme values of functions on given intervals.
- Convey the connections between limits, derivatives, and integrals.
- Use the Fundamental Theorem of Calculus to evaluate definite integrals.

Program Learning Outcomes
Students graduating from SFASU with a B.S. degree and a major in mathematics will:
- Demonstrate comprehension of core mathematical concepts. [Concepts]
- Execute mathematical procedures accurately, appropriately, and efficiently. [Skills]
- Demonstrate competence in using various mathematical tools, including technology, to formulate, represent, and solve problems. [Problem Solving]
- Demonstrate proficiency in communicating mathematics in a format appropriate to expected audiences. [Communication]

General Exemplary Educational Objectives
All general education mathematics sequences in the state of Texas should equip students:
- To apply arithmetic, algebraic, geometric, higher-order thinking, and statistical methods to modeling and solving real-world situations.
- To represent and evaluate basic mathematical information verbally, numerically, graphically, and symbolically.
- To expand mathematical reasoning skills and formal logic to develop convincing mathematical arguments.
- To use appropriate technology to enhance mathematical thinking and understanding and to solve mathematical problems and judge the reasonableness of the results.
- To interpret mathematical models such as formulas, graphs, tables and schematics, and draw inferences from them.
- To recognize the limitations of mathematical and statistical models.
- To develop the view that mathematics is an evolving discipline, interrelated with human culture, and understand its connections to other disciplines.
Evaluate how you study and seek to study smarter, not necessarily longer. Some people take longer to understand things than others. Ph.D. mathematicians frequently find it hard to learn new things sometimes and make mistakes on things we already know. We have just learned to keep working, even it takes hours, days, weeks, or years.

Treat mistakes as a learning experience.

Have someone check your work after you have finished it to help eliminate mistakes that you do not know you are making.

Treat mistakes as a learning experience.

Supplemental Instruction (SI)

- Gricelda Ortiz will hold SI study session Tuesday and Thursday at 6pm in Room 107 of the Library.

General Policies and Information

- Homework will also be assigned from our textbook for your personal study.
- Quizzes will take place the last 10-15 minutes at the end of every non-exam week. (There may occasionally be additional quizzes.)
- Lab assignments will be assigned during each lab period. Due dates will vary.
- You earn your grade by communicating your understanding of the material through the quizzes, labs, and tests. Clearly communicating mathematics will be essential in this course.
- I will send e-mails to the entire class during the semester. Check your SFA e-mail account frequently. My website lists daily assignments and other useful information.
- To contact me, you may call my office, drop by my office, or e-mail me. I will do my best to reply quickly.
- Students are expected to respect the learning environment of their fellow students. To this end, use of mobile phones, mp3 players, PDAs, etc., is forbidden during class.

Testing, Grading, and Make-up Policies

- If you miss a test and have a valid excuse, I will replace your missed test grade by your final exam grade. However, your final may only replace one other score.
- Attendance Policy: Over 3 unexcused absences may result in a grade reduction.
- Since you have a full semester to arrange any travel plans, they are not an excuse for missing the final.
- Students are expected to attend every class meeting, arriving on time. If you have 3 or less absences and score a 70% or better on the final, I may replace your lowest test grade or your quiz grade. If a student leaves class early without permission, the student will be marked absent.
- You may get help on work that is assigned to be done outside of class, unless otherwise instructed, but I expect any work that you turn in to reflect your understanding of the material. On in-class graded work, I expect you to only use your brains, pencil, paper, and, sometimes, a calculator.

Tips for a Successful math class

- Measure success as understanding and being able to do new problems, not as having completed the assignment.
- Try to understand definitions and solving approaches. See if you can find examples that work and examples that don’t.
- Take the time to read the book and review your notes before and after class.
- Practice homework problems until you can do it without referring to examples or help from your notes.
- Practice explaining big ideas and problem solving procedures in your own words, using complete sentences.
- Have someone check your work after you have finished it to help eliminate mistakes that you do not know you are making.
- Treat mistakes as a learning experience.
- Realize that math is hard. Some parts are harder for some people than others. Ph.D. mathematicians frequently find it hard to learn new things sometimes and make mistakes on things we already know. We have just learned to go back and refresh the basics, and keep working, even it takes hours, days, weeks, or years.
- Some people take longer to understand things than others. Evaluate how you study and seek to study smarter, not necessarily longer. If you are still stuck, get some help. The AARC and I are here for you!

Course outline:  

- Limits and continuity 30%
- Derivatives and antiderivatives 30%
- Applications of derivatives 30%
- Definite integration 10%

Approximate time spent
University Policies

- **Academic Integrity (A-9.1)** Academic integrity is a responsibility of all university faculty and students. Faculty members promote academic integrity in multiple ways including instruction on the components of academic honesty, as well as abiding by university policy on penalties for cheating and plagiarism.

**Definition of Academic Dishonesty** Academic dishonesty includes both cheating and plagiarism. Cheating includes but is not limited to (1) using or attempting to use unauthorized materials to aid in achieving a better grade on a component of a class; (2) the falsification or invention of any information, including citations, on an assigned exercise; and/or (3) helping or attempting to help another in an act of cheating or plagiarism. Plagiarism is presenting the words or ideas of another person as if they were your own. Examples of plagiarism are (1) submitting an assignment as if it were one's own work when, in fact, it is at least partly the work of another; (2) submitting a work that has been purchased or otherwise obtained from an Internet source or another source; and (3) incorporating the words or ideas of an author into one's paper without giving the author due credit. Please read the complete policy at [http://www.sfasu.edu/policies/academic_integrity.asp](http://www.sfasu.edu/policies/academic_integrity.asp).

- **Withheld Grades Semester Grades Policy (A-54)** Ordinarily, at the discretion of the instructor of record and with the approval of the academic chair/director, a grade of WH will be assigned only if the student cannot complete the course work because of unavoidable circumstances. Students must complete the work within one calendar year from the end of the semester in which they receive a WH, or the grade automatically becomes an F. If students register for the same course in future terms the WH will automatically become an F and will be counted as a repeated course for the purpose of computing the grade point average. The circumstances precipitating the request must have occurred after the last day in which a student could withdraw from a course. Students requesting a WH must be passing the course with a minimum projected grade of C.

- **Students with Disabilities** To obtain disability related accommodations, alternate formats and/or auxiliary aids, students with disabilities must contact the Office of Disability Services (ODS), Human Services Building, and Room 325, 468-3004 / 468-1004 (TDD) as early as possible in the semester. Once verified, ODS will notify the course instructor and outline the accommodation and/or auxiliary aids to be provided. Failure to request services in a timely manner may delay your accommodations. For additional information, go to [http://www.sfasu.edu/disabilityservices/](http://www.sfasu.edu/disabilityservices/).

- **Acceptable Student Behavior** Classroom behavior should not interfere with the instructor’s ability to conduct the class or the ability of other students to learn from the instructional program (see the Student Conduct Code, policy D-34.1). Unacceptable or disruptive behavior will not be tolerated. Students who disrupt the learning environment may be asked to leave class and may be subject to judicial, academic or other penalties. This prohibition applies to all instructional forums, including electronic, classroom, labs, discussion groups, field trips, etc. The instructor shall have full discretion over what behavior is appropriate/inappropriate in the classroom. Students who do not attend class regularly or who perform poorly on class projects/exams may be referred to the Early Alert Program. This program provides students with recommendations for resources or other assistance that is available to help SFA students succeed.