

**COURSE SYLLABUS**  
**MTH 285**  
**FUNDAMENTALS OF CALCULUS**  
**3 SEMESTER HOURS CREDIT**  
**FALL 2007**

<b>Location of Class:</b>	LDB 424
<b>Class Meeting Time:</b>	TT 12:30 – 2:00 pm
<b>Instructor:</b>	Dr. John Huber
<b>Office Location:</b>	Lee Drain Building – Room 421-D
<b>Instructor Contact Information:</b>	Office Phone: 936-294-1589 email: <a href="mailto:jhuber@shsu.edu">jhuber@shsu.edu</a>
<b>Office Hours:</b>	8:00 – 10:00 am MW 9:30 – 11:00 am TTh Other by appointment

**Course Description**

This course is an introduction to the concepts and applications of calculus to topics in middle school mathematics. MTH 284 is required as a prerequisite for this course.

**Course Objectives**

- Understand and apply the conceptual foundations of calculus related to topics in middle school mathematics.
- Relate topics in middle school mathematics to the concept of limit in sequences and series.
- Relate the concept of average rate of change to the slope of the secant line and instantaneous rate of change to the slope of the tangent line.
- Relate topics in middle school mathematics to the area under a curve.
- Demonstrate an understanding of the use of calculus concepts to answer questions about rates of change, areas, volumes, and properties of functions and their graphs.
- Develop a broader understanding and appreciation of calculus as it relates to middle school mathematics.

## Course Outline

### The Area Problem

- Infinite Sequences
- The Limit of a Sequence
- Infinite Series
- Archimedes and Pi
- The Area of a Circle
- The Area Function
- The Definite Integral

### The Tangent Problem

- The Limit of a Function: Graphically and Numerically
- The Limit of a Function: Algebraically
- The Slope of a Curve at a Point
- The Derivative as a Function
- The Product and Quotient Rule
- The Derivative of Composite and Inverse Functions
- The Derivative of the Exponential and Logarithmic Functions

### Applications

- The Mean-Value Theorem for Integrals
- Area Between Curves
- The Fundamental Theorem of Calculus
- The Length of a Curve
- The Surface of Revolution
- The Volume of a Solid

### Required Textbook:

*Fundamentals of Calculus*  
by John Huber (Available on BlackBoard)

### Graphing Calculator:

TI-83 Plus or TI-84 Plus

### Attendance Policy

Attendance is *extremely* important. Regular and punctual attendance is expected. Course grades may be lowered up to one-half letter grade for each one hour absence in excess of three hours. Students should discuss each absence with the instructor.

## Assignments

Major Examinations (3)	75%
Final Examination	25%

## Major Examinations

There will be three major examinations in this course. You should notify the instructor in advance if you must miss a class during which time a major examination is scheduled.

The instructor, at his discretion, may allow you to take the exam early. In the event this is not possible, the final exam grade will replace the exam missed. Each major exam will be worth 100 points.

## Final Examination

The final examination is comprehensive. It will be multiple-choice and will be worth 100 points.

## Grading Plan

The course grade will be determined by the average of the three (3) major exam grades and the final exam grade. In the event your grade on the final exam is higher than your lowest major exam grade, the final exam grade will replace the score on the exam with the lowest grade. If the final exam grade is replacing a missed exam, the final exam grade will only be used in place of the missed exam. The letter grade will be determined as follows:

90 – 100	A	60 – 69	D
80 – 89	B	< 60	F
70 – 79	C		

## Academic Dishonesty

All students are expected to engage in all academic pursuits in a manner that is above reproach. Students are expected to maintain complete honesty and integrity in the academic experiences both in and out of the classroom. Any student found guilty of dishonesty in any phase of academic work will be subject to disciplinary action. The University and its official representatives may initiate disciplinary proceedings against a student accused of any form of academic dishonesty including, but not limited to, cheating on an examination or other academic work which is to be submitted, plagiarism, collusion and the abuse of resource materials.

## Classroom Rules of Conduct

Students will refrain from behavior in the classroom that intentionally or unintentionally disrupts the learning process and, thus, impedes the mission of the university. *Cellular*

***telephones and pagers must be turned off before class begins.*** Students are prohibited from eating in class, using tobacco products, making offensive remarks, reading newspapers, sleeping, talking at inappropriate times, wearing inappropriate clothing, or engaging in any other form of distraction. Inappropriate behavior in the classroom shall result in a directive to leave class. Students who are especially disruptive also may be reported to the Dean of Students for disciplinary action in accordance with university policy.

### **Visitors in the Classroom**

Unannounced visitors to class must present a current, official SHSU identification card to be permitted in the classroom. They must not present a disruption to the class by their attendance. If the visitor is not a registered student, it is at the instructor's discretion whether or not the visitor will be allowed to remain in the classroom.

### **Americans with Disabilities Act**

It is the policy of Sam Houston State University that no otherwise qualified disabled individual shall, solely by reason of his/her handicap, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any academic or Student Life program or activity. Disabled students may request assistance with academically related problem stemming from individual disabilities by contacting the Director of the Counseling Center in the Lee Drain Annex or by calling 936-294-1720.

### **Religious Holidays**

A student who is absent from class for the observance of a religious holy day will be allowed to take an examination or complete an assignment scheduled for that day within a reasonable time after the absence. Students will be excused to travel for observance of a religious holy day. A student who wishes to be excused for a religious holy day must present the instructor with a written statement describing the holy day(s) and the travel involved. Upon receiving the statement the instructor will provide the student with a written description of the deadline for the completion of missed exams or assignments.

### **Instructor Evaluations**

You may be asked to complete a course/instructor evaluation form toward the end of the semester.

### **Syllabus Revision**

The instructor reserves the right to revise any part of this syllabus as deemed necessary throughout the semester. Revision, if necessary, will be announced during class.