

MA 125-105

Calculus I

Spring 2012

**Instructor:** Yorck Sommerhäuser

**Office:** ILB 423

**Telephone:** 414-8039

**E-Mail:** sommerh@jaguar1.usouthal.edu

**Office hours:** Wednesday, 11:15 am–1:15 pm, Friday, 11:15 am–1:15 pm

**Prerequisites:** MA 113 or MA 115 or sufficient placement test score.

**Textbook:** J. Rogawski, *Calculus: Early transcendentals*, 1st ed., W. H. Freeman, New York, 2008

**Course description:** The course provides an introduction to calculus with emphasis on differential calculus. Topics include limits of functions, derivatives of elementary functions, application of the derivative to curve sketching and optimization problems, and examples in the natural sciences and economics. The course concludes with an introduction to definite integrals and the fundamental theorem of calculus. Credit for both MA 120 and MA 125 is not allowed.

**Objectives:** Upon the successful completion of the course a student will be able to analyze elementary functions with regard to their critical behavior, regions of increase and decrease, concavity properties and asymptotic behavior, and to sketch a graph based on these observations; have a deep understanding (both conceptual and computational) of the idea of a limit; possess the skills necessary to understand, interpret, and compute the derivative as a rate of change, as a slope, as a linear approximation, and as a tool for optimization problems; be able to compute simple anti-derivatives; be able to estimate an area under a curve and a definite integral using Riemann sums; interpret definite integrals as a signed areas; be able to state and prove results about limits, derivatives, mean values; to state and use the fundamental theorem of calculus.

**Coverage:** We cover Section 1.4-1.6, 2.2-2.8, 3.1-3.3, 3.5-3.11, 4.1-4.9, and 5.1-5.4 in the textbook.

**Attendance:** Attendance is required and contributes to the final grade. Three classes may be missed without affecting this grade. Absence in more than half of the classes results in failing the whole course.

**Exams:** There will be two midterm exams and a comprehensive final exam. No make-up exams will be offered. Calculators and other electronic devices must not be used during the exams. The midterm exams take place on Wednesday, February 15 as well as Friday, March 30. The final exam takes place on Wednesday, May 9, 1:00 pm–3:00 pm.

**Daily homework:** The daily homework assignment will consist of a reading assignment and a problem assignment. One or two problems of the daily problem assignment have to be completed online via the eCompanion of the course at <http://usaonline.southalabama.edu>. The time frame for this completion begins after the lecture in which the problem was assigned, and ends one hour before the next lecture.

**Quizzes:** There will be a short quiz every week on Friday. No make-up quizzes will be offered. However, the two lowest quiz grades will be dropped.

**Grading weights:**

Attendance:	5%
Online homework:	15%
Quizzes:	15 %
Midterm exams:	20% each
Final exam:	25%

**Grading scale:**

A:	90%
B:	80%
C:	70 %
D:	60%

**Policies:** Eating, drinking, and smoking is not permitted in the classroom. The use of electronic devices such as laptops, i-pods, cellphones, or calculators is not allowed unless explicitly stated by the professor. Cellphones may be brought to class, but must be completely off and stowed away. They must not be used during class at any time. Furthermore, the policies described in the student handbook 'The Lowdown' apply.

**Tutoring:** The tutoring laboratory in ILB 456 provides additional help for this course.

**Disabled students:** If you have a specific disability that qualifies you for academic accommodations, please notify me and provide certification from the Office for Special Student Services, which is located at 5828 Old Shell Rd. (Tel. 460-7212).

**SACS requirement:** The Southern Association of Colleges and Schools requires that the following sentence be on the syllabus: Student Learning - Quantitative Reasoning is the ability to systematically analyze quantitative concepts, evidence, processes, and outcomes to reach a rational conclusion.

**JagSuccess:** JagSuccess is a program intended to help students be successful in 100 and 200 level courses. If you are not doing well, you will receive an email instructing you to see your professor and academic advisor. You will also receive a link to an online survey regarding class habits and study skills. Based on your survey score, you will receive recommendations for improving your performance. Watch for the JagSuccess email around week 6 or 7 of this semester.