

MA 227-102

## Calculus III

Spring 2010

**Instructor:** Yorck Sommerhäuser

**Office:** ILB 423

**Telephone:** 414-8039

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

**Office hours:** Monday, 10:15 am–11:15 am, Tuesday 10:00 am–11:00 am, Wednesday, 10:15 am–11:15 am, Thursday 10:00 am–11:00 am

**Prerequisites:** C or better in Calculus II (MA 126) or an equivalent course

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

**Course description:** Continuing Calculus II, the course is an introduction to multivariable calculus. After explaining vectors and vector-valued functions, we treat the differential calculus for functions of several variables, which includes such topics as partial derivatives, the multivariable chain rule, and Lagrange multipliers. Afterwards, we cover the integral calculus for functions of several variables, including the transformation of integrals to special coordinate systems like spherical coordinates. The course concludes with line and surface integrals and the basic theorems about them, like Green's and Stokes' theorem.

**Objectives:** The goal of the course is to introduce the student to multivariable calculus, both theoretically and practically. Practically, the student will acquire the ability to differentiate and to integrate functions of several variables, and to compute line and surface integrals. Theoretically, the student will learn how these difficult concepts are actually defined and what the computed quantities really signify. This enhances in particular the student's spacial imaginative power.

**Coverage:** We cover the chapters 12-17 of the textbook almost completely.

**Attendance:** Attendance is required and contributes to the final grade. Four 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 exam. The midterm exams take place on Thursday, February 18 as well as Thursday, March 25. The final exam takes place Monday, May 3, 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.

**Weekly homework:** Every week on Thursday, a set of problems will be handed out. These have to be completed and handed back the next Monday. The problem set will consist of two to three problems. Their solutions are supposed to contain detailed explanations of all necessary steps using complete English sentences.

**Grading weights:**

Attendance:	5%
Daily online homework:	15%
Weekly graded homework:	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.

**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 in Room 270 of the Student Center (Tel. 460-7212).