# Course Summary: Math 2313

## Calculus III

The discovery of calculus by Newton and Leibnitz in the seventeenth century revolutionized humanity's view of the natural world and of the capabilities of human understanding. After all these years, calculus is still one of the main tools used by mathematicians and other scientists to understand how things change and how things fit together. By now it should be clear to you that the key idea is to look closely at tiny pieces of a picture and then to reassemble these little bits back into the big pattern. In Calculus I and II you where introduced the three main ideas of calculus: limits, derivatives, and integrals. In Math 2313 we expand upon this knowledge and see it's application in a multidimensional setting.

## Structure of the course

Lecture: Basic concepts and explanations (proofs), simplified examples

Text: Detailed proofs, extensive motivation and examples, many problems

Basic facts:

1. You must learn mathematics yourself: Math is different from other subjects!

2. Your homework is the best way to prepare for the quizzes and exams, and in general is the key to understanding the course. Do the homework. Form study groups. Ask questions. Go to office hours. Teach the proofs to someone (even a make-believe friend).

3. You cannot learn mathematics just by listening to lectures. I recommend looking over the sections of the book before the corresponding lecture --

*it is better to be bored than confused !*

# Marking Scheme

Here is the marking scheme that I use when grading exams, quizzes and work that is handed in. A number will be placed next to each problem (or part of problem) according to the following scheme:

**10 points scheme:**

10 points - perfect
8 points - minor mistakes
7 points - major mistake, right idea
5 points - wrong but contains a significant idea
3 points - wrong but contains a relevant idea
0 - no answer, invalid work/response, guessing, etc.

**5 points scheme:**

5 points - perfect
4 points - minor mistakes
3 points - major mistake, right idea
2 points - wrong but contains a significant idea
1 point - wrong but contains a relevant idea
0 - no answer, invalid work/response, guessing, etc.

It is possible to receive points (i.e. 9 points, 6 points, etc.) in between the markings in the 10 point scheme. It is usually not possible in the 5 point scheme. Other point schemes may be used.

# Grades

Here is what standard letter grades in math/science/engineering/associated courses usually mean:

**A**: Thorough mastery of the material, including the main definitions, the major theorems and their proofs, as well as a demonstration of originality in solving problems and writing proofs.

**B**: Good understanding of the material, including the main definitions, theorems, and proofs, and ability to solve nontrivial problems.

**C**: Firm grasp of the main points, including the major definitions and theorems, ability to solve standard problems.

**D**: Familiarity with major concepts, terminology, and problem solving techniques.

**F**: None of the above.