MAT 300 SYLLABUS IN PROGRESS*
SUMMER 2010

Text: ***Analysis with an Introduction to Proof*** **.... by Steven Lay, 4th edition**
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Class format:

The format will be very simple: reading and problems will be assigned. Most of the problems will require you construct proofs. We begin with very simple ones and work our way up to more substantial ones. We will cover the first 129 pages of the textbook. This is not much material, mainly because this is not a course where you are supposed to learn new mathematics (though you probably will) but rather a course where you learn to write proofs. Writing proofs, as you probably know, is much harder than computing solutions to textbook problems, so be prepared to work!

Each class meeting will be primarily devoted to **you** and your class mates presenting proofs on the board. You will be expected to be involved, in a constructive way, with what your fellow students are writing on the board. Don't expect a lot of sitting back in your chair listening (and being bored by) lecturing.

There will be no exams. Grades will be based on class participation.
Attendance: You have two unexcused absences. Each absence thereafter will be severely penalized. **4 unexcused absences will automatically result in a grade of E.**
Office hours: I will be available outside of class during my office hours. If you are having problems with the material, don't wait, but ask questions immediately before you fall behind too much.
Homework Assignments: (**chapter** problem)

1 1, 2, 3, 5, 6, 7, 11
2 1-5, 8, 9, 11-19
3 1-4, 6-8, 11
4 1, 2, 5, 7, 10, 16, 19, 20
5 2, 3, 5, 6, 8, 10, 15, 19, 22, 25, 26
6 1, 3, 4, 6-11, 14, 17, 22, 23
7 1-4, 6, 7, 11, 14, 17, 19, 27, 29
8 1-9, 15-17, 19-23, 25, 26
9 3
10 1-4, 7, 9, 11, 20, 21, 28
11 4-8
12 1-10
13 1-23
14 Problem 0: a) Show that if S is a set of real numbers, y an accumulation point of S that is not a member of S. By finding an open cover that fails to have a finite subcover, prove that S is not compact. b) Show that compact implies closed.

14 3-7, 8a, 9 (you are not to use the Heine-Borel Theorem for any of these problems. **HINT:** For 4 and 8a (tricky to do without the Heine-Borel theorem) use problem 0 (above) which implies the complement of a compact set is open.