Math 2141-001: Advanced Calculus I
Fall 2014

Class meets on Monday, Wednesday and Friday in LH 107, from 12:20-1:35
Textbook: We use Calculus, Volume I, Second edition, by Tom Apostol.

Instructor's information:
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Office hours: Wednesday and Friday from 2:30-3:30

Grading and Exams:
There will weekly homework, which will be collected on Friday, at the end of the lecture.
You are welcome to submit your homework earlier as well.
The total homework grade will make 30% of your grade in this class.
There will be two midterm exams, both in class.
Midterm I is on Wednesday, October 1.
Midterm II is on Wednesday, November 5.
Each of these midterms make 20% of your total grade.

The final exam is scheduled by the registrar, and makes 30% of the total grade.
Calculators are not allowed (and are not of any use) during exams.

Tentative syllabus:
Week 1 Set theory, I.2
Number systems, I.3
Week 2 Induction, sum notation, triangle inequality, I.4
Week 3 Area, step functions, integration of functions, 1.1-1.19
Week 4 Properties of integral, integration of polynomials, 1.20-1.27 Area between curves, 2.1-2.4
Week 5 Trig functions, polar coordinates, applications of integration, 2.5-2.17
Week 6 Indefinite integrals, 2.18-2.19 and definition of limit, 3.1-3.2
Midterm on October 1, will cover material from week 1-week 4
Week 7 Continuity, intermediate value theorem, inversion, 3.3-3.15
Week 8 Extreme value theorem, continuous functions, mean value theorem, 3.16-3.20 Derivative, 4.1-4.4
Week 9 Algebra of derivatives, chain rule, implicit differentiation, 4.5-4.12
Week 10 Extreme values, geometric properties of functions, 4.13-4.19 Fundamental theorem of calculus, 5.1-5.6
Week 11 Integration by substitution, by parts, 5.7-5.10
Midterm on November 5, will cover material from week 5-week 9
Week 12 Log functions, log differentiation, exponential functions, 6.1-6.18
Week 13 Inverse trig functions, partial fractions, rational functions, 6.19-6.25
Week 14 Review
Final exam is cumulative.