Math 1310 Syllabus
Engineering Calculus I

This is the first semester of a four-semester Engineering Math sequence. This semester treats topics in differential and integral calculus, with a focus on engineering applications and projects.

Text: Calculus: Concepts and Contexts, 4th edition, by J. Stewart , chapters 1-6.3

Course outline:

Week 1	1.3-1.5	Functions, Graphs, Compositions, Exponential Function
Week 2	1.6-2.1	Logarithms, Inverse Functions, Parametric Curves, Velocity
Week 3	2.2-2.4	Limits, Limit Laws, Continuity
Week 4	2.5-2.7	Derivatives, Rate of Change, Relationship between a Function and its Derivative
Week 5	2.8-3.2	Derivatives of Polynomials and Exponential, Product and Quotient Rules
Week 6	3.3-3.5	Derivatives of Trig Functions, Chain Rule, Implicit Differentiation
Week 7	3.6-3.8	Inverse Trig Functions, Log Functions, and their Derivatives, Applications
Week 8	3.9-4.2	Linear Approximation, Differentials, Related Rates, Max and Min Values
Week 9	4.3-4.5	Derivatives and Shapes of Curves, Graphing, l'Hopital's Rule
Week 10	4.6-4.8	Optimization, Newton's Method, Antiderivatives
Week 11	5.1-5.3	Areas, Distances, The Definite Integral, Evaluating Definite Integrals
Week 12	5.4-5.6	Fundamental Theorem of Calculus, Substitution Rule, Integration by Parts
Week 13	5.7-5.9	Integration Techniques, Approximate Integration
Week 14	5.10, 6.1-6.2	Improper Integrals, Areas Between Curves, Volumes
Week 15	6.3-6.4	Volumes by Shells, Arc Length, Review

Course format: There are four 50 minute lecture presentations per week (or equivalent), and one 50 minute section meeting. Section meetings will focus on homework and project work. Projects will be drawn from the suggestions in the text, as well as from topics suggested by the College of Engineering. Students will be evaluated on the basis of regular homework and/or quizzes based on that homework; project work; 2-3 midterm exams administered during their section meetings; and an in-class final exam administered during the University scheduled time.