

Math 270
Calculus I

Text: *Calculus*, 5th edition, Hughes-Hallett, McKallum, and Gleason, Wiley, 2009

Prerequisites: (a) Math 140 or Math 143 with a grade of "C" or better, (b) transfer credit in equivalent courses from another university, or (c) a sufficiently high score on one of the departmental placement exams.

Calculus is a branch of mathematics which for over three centuries has served as the basis for the analysis of continuous change. Applying calculus to real-life problems in science, engineering, or other fields requires both an understanding of how the mathematics can be used to model problems and the capability of performing the calculations and computations necessary to obtain solutions. The textbook concentrates on the most important topics of calculus (limits, derivatives, integrals, etc), but with emphasis on the graphical and numerical representation of functions and other relations as well as the traditional use of symbolic formulas. The materials in our text are meant to be read thoroughly and carefully. The writing is plain and straight-forward. While the text does contain some routine "drill" exercises, the authors have included other types of in-depth problems designed to develop conceptual understanding. A number of the problems are intended to be discussed by students working together in small groups. This new approach to calculus is enhanced by the availability of new technology, which can heighten our understanding of mathematical relationships. In this course, the graphing calculator will be the standard tool for visualization and numerical computation.

This syllabus is an outline for 44 class periods of Calculus I. The remaining class periods will be devoted to special presentations, group activities, review and assessment.

Lesson	Section and Topic	Assignment
1	1.1 Functions and Change	1, 2, 6, 10, 13, 14, 16, 18, 21, 25, 28, 31, 34, 37, 40, 43
2	1.2 Exponential Functions	5, 8, 10, 13, 15, 16, 18, 22, 25, 28, 30, 33, 35, 37
3	1.3 New Functions from Old	2, 7, 10, 13, 17, 20, 24, 27, 30, 35, 37, 40, 42, 52, 54, 57, 60
4	1.4 Logarithmic Functions	3, 6, 9, 12, 16, 19, 23, 26, 30, 33, 36, 40, 44, 47, 51
5	1.5 Trigonometric Functions	1, 4, 7, 9, 13, 16, 20, 23, 27, 30, 33, 36, 39, 41, 45, 49
6	1.6 Powers, Polynomials, and Rational Functions	3, 6, 9, 12, 13, 14, 16, 19, 22, 25, 26
7	1.7 Introduction To Continuity	1, 4, 8, 10, 13, 17, 20, 23, 25, 28, 29
8	1.8 Limits	1, 3, 7, 10, 13, 17, 20, 26, 32, 36, 39, 43, 47, 50
9	2.1 How Do We Measure Speed?	2, 4, 7, 9, 11, 12, 14, 15, 18, 20, 23, 24, 26, 28
10	2.2 The Derivative At A Point	1, 2, 4, 5, 6, 8, 9, 10, 11, 12, 13, 15
11	2.2 The Derivative At A Point (cont.)	16, 18, 20, 24, 27, 28, 32, 35, 37, 40, 43, 45
12	2.3 The Derivative Function	2, 4, 7, 11, 14, 16, 20, 23, 25, 28, 32
13	2.3 The Derivative Function (cont.)	38, 40, 41, 43, 46
	2.4 Interpretations of the Derivative	1, 3, 6, 8, 11
14	2.4 Interpretations of the Derivative (cont.)	15, 16, 19, 20, 21, 23, 25
15	2.5 The Second Derivative	1, 3, 4, 6, 9, 11, 12, 14, 17, 20, 23, 27, 29, 31
16	2.6 Differentiability	1, 2, 5, 7, 9, 11, 14, 16
17	3.1 Powers and Polynomials	1, 4, 5, 9, 12, 16, 19, 22, 26, 30, 33, 37, 40, 43, 47, 49, 52, 53
18	3.1 Powers and Polynomials (cont.)	55, 57, 58, 61, 65, 67
	3.2 The Exponential Function	2, 6, 9, 12, 16, 19, 22, 26
19	3.2 The Exponential Function (cont.)	29, 32, 33, 39, 42, 43, 46
20	3.3 The Product and Quotient Rules	1, 4, 7, 11, 14, 18, 21, 25, 30, 33, 37, 40, 43, 46
21	3.3 The Product and Quotient Rules (cont.)	48, 51, 52, 54
	3.4 The Chain Rule	2, 5, 9, 12, 15, 19, 22, 25, 28, 32, 36, 40, 44, 48, 52, 56
22	3.4 The Chain Rule (cont.)	60, 64, 67, 70, 73, 75, 78, 80, 85
23	3.5 The Trigonometric Functions	1, 4, 8, 12, 15, 19, 22, 25, 28, 31, 35, 39, 41, 44, 48
24	3.6 The Chain Rule and Inverse Functions	4, 7, 10, 13, 16, 20, 24, 27, 31, 34, 37
25	3.6 The Chain Rule and Inverse Functions (cont.)	42, 43, 45, 48, 52, 55, 56, 59, 61
26	3.7 Implicit Functions	2, 6, 10, 14, 17, 20, 24, 28, 31, 34

Lesson	Section and Topic	Assignment
27	3.8 Hyperbolic Functions	1, 5, 8, 13, 16, 19, 23, 28, 31
28	3.9 Linear Approximation and the Derivative	1, 4, 7, 10, 13, 16, 19, 23, 27, 31, 35
29	3.10 Theorems About Differentiable Functions	1-5, 7, 9, 10, 11, 14, 18, 20, 25
30	4.1 Using First and Second Derivatives	2, 5, 8, 10, 13, 16, 19, 22, 25, 28, 31, 34
31	4.1 Using First and 2nd Derivatives(cont)	37, 40, 42, 46, 51
	4.2 Optimization	3, 6, 10, 15, 17, 20
32	4.2 Optimization (cont.)	24, 26, 30, 32, 35, 36, 38
33	4.3 Families of Functions	2, 5, 9, 12, 16, 19, 23, 26, 30, 32, 35, 38
34	4.3 Families of Functions (cont.)	42, 46, 50, 53, 55
	4.4 Optimization, Geometry and Modeling	1, 4, 8, 11, 14, 17, 21
35	4.4 Optimization, Geometry and Modeling(cont.)	23, 28, 32, 33, 36, 38, 41, 44, 46, 48
36	4.5 Applications to Marginality	2, 4, 7, 9, 12, 16, 19, 21, 25
37	4.6 Rates and Related Rates	3, 6, 10, 14, 17, 21, 24, 27, 31, 35, 38, 42, 45
38	4.7 L'Hopital's Rule, Growth, and Dominance	3, 6, 10, 12, 15, 17, 20, 24, 28, 31, 34, 37, 41, 43, 48, 54
39	4.8 Parametric Equations	1, 4, 7, 11, 14, 18, 21, 25, 28, 31, 35, 38, 41, 45, 48, 56
40	5.1 How Do We Measure Distance Traveled?	2, 5, 7, 9, 12, 14, 15, 18, 20, 22
41	5.2 The Definite Integral	1, 2, 4, 7, 8, 10, 12, 14, 16, 18, 21
42	5.2 The Definite Integral (cont.)	22, 25, 28, 31, 33, 34, 35
43	5.3 The Fundamental Theorem and Interpretations	1, 4, 7, 10, 14, 17, 21, 23, 27, 30, 34, 38, 40, 44
44	5.4 Theorems About Definite Integral	2, 5, 9, 13, 16, 19, 23, 26, 29, 33, 35, 37, 39, 44, 45, 46, 47

Emergency Evacuation Procedure: A map of this floor is posted near the elevator marking the evacuation route and the **Designated Rescue Area**. This is an area where emergency service personnel will go first to look for individuals who need assistance in exiting the building. Students who may need assistance should identify themselves to the teaching faculty.

Last updated 12 August 2009.