

THE COLLEGE OF STATEN ISLAND, CUNY
DEPARTMENT OF MATHEMATICS

**MATH 221
COURSE OUTLINE**

Text: [Business Calculus](#) by Shana Calaway, Dale Hoffman, David Lippman.
This is a freely available (OER) textbook:
<https://www.opentextbookstore.com/buscalc/buscalc/>

Two lessons refer to [Paul's Online Notes](#) by Paul Dawkins
<https://tutorial.math.lamar.edu/Classes/CalcI/CalcI.aspx>

Calculator: A graphing calculator is required. TI-84 is highly recommended.

Note: Below, each lesson corresponds to a two-hour class. Homework problems must be submitted online using WeBWork.

Lesson	Topic	Reading	Webwork Set
1	Linear functions, Average rate of change	1.1 Functions	1
		1.2 Operations on Functions	1
		1.3 Linear Functions	1
2	Quadratic functions	1.5 Quadratics	2
	Polynomial and rational functions	1.4 Exponents	2
	Exponential and logarithmic functions	1.6 Polynomials and Rational Functions	2
		1.7 Exponential Functions	14
		1.8 Logarithmic Functions	14
3	Limits and continuity	2.1 Limits and Continuity	3
4	Infinite limits	Paul Online 2.6 Infinite Limits	
		Paul Online 2.7 Limits at Infinity	
5	Review		
6	Exam 1		
7	First derivative	2.2 The Derivative	4,9
8	Power rule	2.3 Power and Sum Rules	5,15
9	Product and quotient rules	2.4 Product and Quotient Rules	6
10	Chain rule	2.5 Chain Rule	7

11	Second derivative and concavity	2.6 The Second Derivative and Concavity	8
12	Optimization	2.7 Optimization	11
13	Curve sketching	2.8 Curve Sketching	
14	Applied optimization	2.9 Applied Optimization	12
15	Review		
16	Exam 2		
17	Elasticity of demand	2.10 Elasticity of Demand	13
18	Related rates	2.11 Implicit Differentiation and Related Rates	10
19	Definite integral	3.1 The Definite Integral	17
20	Fundamental Theorem of Calculus	3.2 The Fundamental Theorem and Antidifferentiation 3.3 Antiderivatives of Formulas	16
21	Substitution rule	3.4 Substitution	19
22	Area, average value	3.6 Area, Volume, and Average Value	18
23	Applications of integration	3.7 Applications to Business	20
24	Improper integrals	Paul Online 7.8 Improper integrals	
25	Review		
26	Exam 3		
27	Final Exam Review		
28	Final Exam Review		