Bronx Community College of the City University of New York
Department of Mathematics and Computer Science

SYLLABUS: MATH 31 - Calculus and Analytic Geometry I (4 credits/6 hours per week)

PREREQUISITE: Math 30 or equivalent

TEXT: Calculus (Fifth Edition) by James Stewart, Brooks/Cole, Pub.
        (Students who do not need Math 33 may use
        Single Variable Calculus (Fifth Edition) by James Stewart, Brooks/Cole, Pub.)

SECTION   TOPIC   SUGGESTED EXERCISES

Chapter 2: Limits and Rates of Change

SECTION	TOPIC	SUGGESTED EXERCISES
2.1	The Tangent and Velocity Problems	69/ 1, 3, 5, 7
2.2	The Limit of a Function	79/ 1-5, 12-14, 17, 23-28
2.3	Calculating Limits Using Limit Laws	89/ 1, 3-23 odd
2.5	Continuity	110/ 3, 7, 9, 11, 15-21 odd, 25, 33, 37, 39, 41, 44, 45, 47
2.6	Tangents, Velocities and Other Rates of Change	119/ 1, 7, 9, 11, 17
	Review	121/ 1-11 odd, 17, 23, 27-31 odd

Chapter 3: Derivatives

SECTION	TOPIC	SUGGESTED EXERCISES
3.1	Derivatives	132/ 1, 5, 7, 13-19 odd, 25, 32
3.2	The Derivative as a Function	142/ 1, 3, 4, 7, 19, 20, 21, 25, 35
3.3	Differentiation Formulas	154/ 1-39 odd, 51, 53
3.4	Rates of Change in the Natural and Social Sciences	166/ 1-9 odd, 15, 18
3.5	Derivatives of Trigonometric Functions	174/ 1-17 odd, 21, 29, 35-43 odd
3.6	The Chain Rule	181/ 1-41 odd, 51, 55
3.7	Implicit Differentiation	188/ 1-19 odd, 25, 27, 41, 43, 45
3.8	Higher Derivatives	195/ 1, 5-19 odd, 23-29 odd
3.9	Related Rates	202/ 1-25 odd
3.10	Linear Approximations and Differentials	210/ 5-35 odd
	Review	213/ 7, 11, 13-35, 45, 51, 59, 71, 75, 77, 82

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Chapter 4: Applications of Differentiation

4.1	Maximum and Minimum Values	229/ 3, 5, 15-23 odd, 31-55 odd
4.2	The Mean Value Theorem	238/ 1, 3, 7, 8, 11-17 odd
4.3	How Derivatives Affect the Shape of a Graph	247/ 1, 5, 7, 11-19 odd, 29-37 odd
4.4	Limits at Infinity; Horizontal Asymptotes	260/ 3, 7-21 odd, 35, 39
4.5	Summary of Curve Sketching	270/ 1-21 odd
4.7	Optimization Problems	283/ 3, 5, 7, 11, 17, 25, 29
4.9	Newton's Method	298/ 5, 7, 11-17 odd, 31
4.10	Antiderivatives	305/ 1-31 odd, 41
	Review	308/ 1-27 odd, 35, 41, 46, 49-55 odd

Chapter 5: Integrals

5.1	Areas and Distance	324/ 1, 3, 5, 13-21 odd
5.2	The Definite Integral	336/ 3, 5, 9, 11, 17, 21, 35, 37, 43
5.3	The Fundamental Theorem of Calculus	347/ 5-33 odd, 41, 43, 45
5.4	Indefinite Integrals and the Net Change Theorem	356/ 1-11 odd, 17-27 odd, 50, 53, 55
5.5	The Substitution Rule	365/ 1-31 odd, 37-53 odd
	Review	368/ 2, 5, 9-23 odd, 33, 35, 37

8/03 C.O'S.