

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

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

PREREQUISITE: MTH 30 or equivalent and, if required, ENG 2 and RDL 2

TEXT: Calculus (Eighth Edition) by James Stewart, Cengage Learning. ISBN 978-1285740621

Students who do not need MTH 33 may use
Single Variable Calculus (Eighth Edition) by James Stewart, Cengage Learning ISBN 978-1305266636

<u>SECTION</u>	<u>TOPIC</u>	<u>SUGGESTED EXERCISES</u>
<u>Chapter 1: Functions and Limits</u>		
1.4	The Tangent and Velocity Problems	49/ 1, 3, 5, 7
1.5	The Limit of a Function	59/ 1-5, 12-14, 17, 23-28
1.6	Calculating Limits Using Limit Laws	70/ 1, 3-23 odd
1.8	Continuity	91/ 3, 7, 9, 15-21 odd, 25, 33, 37, 39, 41, 44, 45, 47, 49, 53, 55, 57
	Review	96/ 1-11 odd, 17, 23, 27, 29
<u>Chapter 2: Derivatives</u>		
2.1	Derivatives	113/ 1, 3, 7, 21-31 odd, 39-47 odd, 53, 57, 59
2.2	The Derivative as a Function	125/ 1, 3, 4, 7, 19, 20, 21, 25-33 odd, 39-51 odd
2.3	Differentiation Formulas	140/ 1-43 odd, 51, 53, 69, 77
2.4	Derivatives of Trigonometric Functions	150/ 1-17 odd, 25, 29, 39-49 odd
2.5	The Chain Rule	158/ 1-45 odd, 47, 51, 55, 69, 71
2.6	Implicit Differentiation	166/ 1-19 odd, 25, 27, 31, 35, 43, 45
2.7	Rates of Change in the Natural and Social Sciences	178/ 1-9 odd, 15, 18
2.8	Related Rates	185/ 1, 3, 9, 10, 11, 13-33 odd
2.9	Linear Approximations and Differentials	192/ 1, 3, 5, 7-25 odd, 31
	Review	196/ 3, 5, 11, 13-37, 45, 51, 59, 61, 75, 77, 79, 82

Chapter 3: Applications of Differentiation

3.1	Maximum and Minimum Values	211/ 3, 5, 15-27 odd, 29-55 odd
3.2	The Mean Value Theorem	219/ 1, 11, 13, 17, 21
3.3	How Derivatives Affect the Shape of a Graph	227/ 1, 5, 7, 8, 9-17 odd, 33-41 odd
3.4	Limits at Infinity; Horizontal Asymptotes	241/ 3, 9-29 odd, 37, 41
3.5	Summary of Curve Sketching	250/ 1-35 odd
3.7	Optimization Problems	256/ 3, 5, 7, 11, 17, 21, 27, 31
3.8	Newton's Method	276/ 5, 7, 13-19 odd, 29
3.9	Antiderivatives	282/ 1-41 odd, 43, 45, 47
	Review	286/ 1-27 odd, 38, 41, 46, 49, 55, 57

Chapter 4: Integrals

4.1	Areas and Distance	303/ 1, 3, 5, 13, 15, 21, 25
4.2	The Definite Integral	316/ 3, 5, 9, 17, 21-25 odd, 31, 33, 37
4.3	The Fundamental Theorem of Calculus	327/ 3, 7-35 odd, 45, 51, 53
4.4	Indefinite Integrals and the Net Change Theorem	336/ 1-11 odd, 19-41 odd, 55, 57
4.5	The Substitution Rule	346/ 1-29 odd, 35-51 odd
	Review	349/ 2, 5, 11-29 odd, 35, 37, 39

8/03 C.O'S.

8/07 MM

7/11 MM, 9/11 AM

6/12 EA

1/16 EA