

BRONX COMMUNITY COLLEGE
of the City University of New York
DEPARTMENT OF MATHEMATICS AND COMPUTER SCIENCE

SYLLABUS: MTH33 – Calculus and Analytical Geometry III (5 Credits – 5 Hours per week)

Prerequisite: MTH32 – Calculus and Analytical Geometry II

TEXT: Calculus (Fifth Edition) by James Stewart, Publisher: Brooks/ Cole

<u>SECTION</u>	<u>TOPIC</u>	<u>SUGGESTED EXERCISES</u>
Infinite Sequences and Series		
12.1	Sequences	747/ 13 – 49 odd
12.2	Series	756/ 1-5, 7, 8, 9, 15-19, 37 – 41 odd
12.3	The Integral Test	765/ 1 – 23 odd
12.4	The Comparison Tests	770/ 15 – 29 odd, 41, 43, 45
12.5	Alternating Series	775/ 1, 3, 7, 9, 11, 15, 17, 19, 21
12.6	Absolute Convergence and the Ratio and Root tests	782/ 7 – 37
12.7	Strategy for Testing Series	784/ 1, 2, 3, 4, 7, 11, 13, 21 – 37 odd
12.8	Power Series	789/ 1 – 31 odd
12.9	Representation of Functions as Power Series	795/ 7 – 39 odd
12. 10	Taylor and Maclaurin Series	806/ 1 – 27 odd
12.11	The Binomial Series	811/ 1 – 19 odd
12.12	Applications of Taylor Polynomials	819/ 1 – 25 odd
	Review	823/ 1 – 43 odd
Vectors and the Geometry of Space		
13.1	Three- Dimensional Coordinate Systems	833/ 1–11 odd, 17, 19, 21, 23-33 odd
13. 2	Vectors	841/ 5 - 29 odd
13.3	The Dot Product	848/ 3 – 47 odd
13. 4	The Cross Product	856/ 1- 39 odd
13. 5	Equations of Lines and Planes	866/ 7 – 43 odd
	Review	881/ 1 – 13 odd

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Vector Functions

14.1	Vector Functions and Space Curves	891/ 1 – 25 odd
14.2	Derivatives and Integrals of Vector Functions	897/ 1 – 29 odd
14.3	Arc Length and Curvature	904/ 1 – 37 odd
	Review	918/ 1 – 5 odd, 9 – 13 odd

Partial Derivatives

15.1	Functions of Several Variables	934/ 3 – 19 odd
15.2	Limits and Continuity	944/ 1 – 33 odd
15.3	Partial Derivatives	956/ 9 – 29 odd, 43 – 69 odd
15.4	Tangent Planes and Linear Approximations	966/ 1 – 21 odd
15.5	The Chain Rule	974/ 1 – 35 odd
15.6	Directional Derivatives and the Gradient Vector	987/ 7 – 33 odd
15.7	Maximum and Minimum Values	997/ 5 – 17 odd, 27 – 33 odd
	Review	1012/ 1 – 45 odd

Multiple Integrals

16.1	Double Integrals over Rectangles	1024/ 1 – 15 odd
16.2	Iterated Integrals	1030/ 3 – 29 odd
16.3	Double Integrals over General Regions	1038/ 1, 3, 7, 15, 17, 19, 25, 27
16.4	Double Integrals in Polar Coordinates	1044/ 1, 5, 9 – 27 odd
16.7	Triple Integrals	1066/ 1, 3, 7, 11- 19 odd
	Review	1086/ 3, 7, 9, 11, 15 – 27 odd