

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

SYLLABUS: MTH 33 – Calculus and Analytical Geometry III (5 Credits – 5 Hours per week)

PREREQUISITE: MTH 32 – Calculus and Analytical Geometry II

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

<u>SECTION</u>	<u>TOPIC</u>	<u>SUGGESTED EXERCISES</u>
Infinite Sequences and Series		
12.1	Sequences	720/ 13 – 55 odd
12.2	Series	730/ 1-5, 7, 8, 9, 15-19, 43 – 47 odd
12.3	The Integral Test	739/ 1 – 25 odd
12.4	The Comparison Tests	770/ 15 – 29 odd, 41, 43, 45
12.5	Alternating Series	749/ 1, 3, 7, 9, 11, 15, 17, 19, 21
12.6	Absolute Convergence and the Ratio and Root tests	755/ 7 – 37
12.7	Strategy for Testing Series	758/ 1, 2, 3, 4, 7, 11, 13, 21 – 37 odd
12.8	Power Series	763/ 1 – 31 odd
12.9	Representation of Functions as Power Series	769/ 5 – 39 odd
12. 10	Taylor and Maclaurin Series	782/ 1 – 31 odd, 43, 45, 71
12.11	Applications of Taylor Polynomials	791/ 1 – 25 odd
	Review	796/ 1 – 43 odd
Vectors and the Geometry of Space		
13.1	Three- Dimensional Coordinate Systems	805/ 1–13 odd, 17, 19, 21, 23-31 odd
13. 2	Vectors	813/ 5 - 29 odd
13.3	The Dot Product	820/ 3 – 47 odd
13. 4	The Cross Product	828/ 1- 43 odd
13. 5	Equations of Lines and Planes	838/ 7 – 45 odd
	Review	849/ 1 – 13 odd

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Vector Functions

14.1	Vector Functions and Space Curves	858/ 1 – 25 odd
14.2	Derivatives and Integrals of Vector Functions	864/ 1 – 29 odd
14.3	Arc Length and Curvature	904/ 1 – 41 odd
	Review	918/ 1 – 5 odd, 9 – 13 odd

Partial Derivatives

15.1	Functions of Several Variables	902/ 3 – 19 odd
15.2	Limits and Continuity	912/ 1 – 37 odd
15.3	Partial Derivatives	924/ 11 – 33 odd, 45 – 73 odd
15.4	Tangent Planes and Linear Approximations	935/ 1 – 23 odd
15.5	The Chain Rule	943/ 1 – 35 odd
15.6	Directional Derivatives and the Gradient Vector	956/ 7 – 33 odd
15.7	Maximum and Minimum Values	997/ 5 – 17 odd, 27 – 33 odd
	Review	981/ 1 – 45 odd

Multiple Integrals

16.1	Double Integrals over Rectangles	994/ 1 – 15 odd
16.2	Iterated Integrals	1000/ 3 – 31 odd
16.3	Double Integrals over General Regions	1008/ 3, 7, 15, 17, 19, 25, 27
16.4	Double Integrals in Polar Coordinates	1014/ 1, 7, 9 – 27 odd
16.7	Triple Integrals	1034/ 1, 3, 9, 11- 19 odd
	Review	1058/ 3, 7, 9, 11, 15 – 27 odd